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ON

SOME PROBLEMS RELATING TO THE EVOLUTION OF THE BRAIN.

Delivered at the Royal College of Surgeons of England on Dec. 13th, 15th, and 17th, 1909,

BY G. ELLIOT SMITH, M.A. CAMB., M.D., CH.M. SYDNEY, F.R.S.,

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF MANCHESTER.

LECTURE I.[1]

Delivered on Dec. 13th.

MR. PRESIDENT AND GENTLEMEN,—At the outset I must express my keen sense of appreciation of the honour the Council has conferred upon me in inviting me to deliver these lectures. Although I am fully aware of the fact that I am not eligible for election to any of the other lectureships in the gift of the College, it is an added gratification to me, as an anatomist, to have been invited to become the Arris and Gale lecturer, for this your oldest benefaction is a two-fold endowment of anatomy, made famous by a long series of distinguished anatomists, beginning with Havers and including the incomparable John Hunter himself. Yet it is more than 30 years since a member of my craft delivered these lectures and I esteem it no small honour to follow two such "Masters of Anatomy," to use the old term for the Arris and Gale lecturers, as Sir George Humphry and Sir William Turner.

In choosing a subject for these lectures I was naturally guided by the remembrance of my association with the College ten years ago, when it was my privilege to assist in the compilation of the second edition of the descriptive catalogue of the unrivalled collection of brains in the museum galleries. On that occasion I seized the opportunity of studying the perhaps even more instructive material accumulated in the College storerooms. These specimens, though in many cases only the merest broken fragments, throw a flood of light on the inner history of some of the most important chapters in cerebral morphology.

When it became necessary to prune the long story of the evolution of the brain that I have to tell, so as to bring it into the compass of three hours' talk, I decided to deal with those parts of it which were made in this museum or by workers who drew their inspiration, directly or indirectly, from it. It may seem prodigal to devote one-third of the short time at my disposal to a historical survey. But if by so doing I can establish a solid foundation upon which to build the second and third lectures the time will be well spent. The literature of the problem with which I propose to deal would not be in the confused state we find it to-day if investigators had taken the trouble to find out what precisely had been definitely established and what was mere conjecture in the writings of others, and, in addition, had learnt the true meaning and origin of the terms they make use of.

In the whole domain of biology there is no fact, perhaps not even life itself, which excites our wonder and arouses our curiosity more than the knowledge that all the kaleidoscopic manifestations of mental activity are dependent upon, and determined by, physiological processes taking place in the nervous system. Even though as yet in our attack on this problem we cannot get to close quarters with the essential factors in these underlying processes, it is instructive to examine the present state of our knowledge concerning the evolution of that part of the organism the orderly working of which is the essential requisite for the occurrence of mental phenomena. I am not so foolish as to imagine that the evolution of the mind can be explained by anatomical studies; but I do maintain that without a correct comprehension of the homologies of the cerebrum in different vertebrates it will be impossible to make full use of the vast knowledge of comparative psychology which is now being built up or fully to understand and interpret the varying behaviour of animals and the differences in their reactions to their environment. For, in attempting to penetrate the veil which surrounds this the sublimest of biological problems, it is not sufficient to rely solely on physiological and psychological sources of information, such as, for example, introspection, the study of the physiology of the senses, the observation of the mental development of children, and the clinical study of human beings whose brains are damaged. There is in addition the perhaps wider and more fruitful field of investigation afforded by the experimental study of the physiology of the nervous system of vertebrates other than man, and especially the rich vein of ore which is now being seriously worked for the first time—namely, the observation of the behaviour of various animals under normal conditions, and the manner of their reaction to strange and abnormal factors in their environment.

This study of animal behaviour, which is being so vigorously pursued on the continent and especially in America at the present time, will provide, perhaps, the most likely channel along which the main stream of advance will be made towards the fuller comprehension of the mysteries of mental life. In this scheme of research anatomy will play the necessary, if perhaps humble, rôle of elucidating the differences in the structure of the nervous mechanisms of the animals examined by the comparative psychologist, and thus point the way towards an adequate explanation of their varying reactions and their different potentialities for mental processes. It will not only provide the physiologist and the psychologist with this essential information, but it will also suggest new subjects for investigation and new lines of attack.

There is no place more appropriate for emphasising the necessity of this *rapprochement* between anatomy and the allied sciences of physiology, pathology, comparative psychology, and zoology than the home of the Hunterian collection. John Hunter's pre-eminent claim on posterity lies mainly in the fact that he did not disdain to seek information in illumination of the dark places of animal structure from any and every source, whether it was the domain of comparative anatomy, physiological experiment, clinical observation, or the study of animal behaviour. Although Charles Darwin could hardly be regarded as the same type of man as Hunter, yet in respect of these characteristics they must be classed together. Yet there is a strange irony in the fact that the *immediate* influence of Darwin's work was distinctly antagonistic to this wider outlook in anatomy. His theory afforded such a powerful stimulus to morphological research and opened up such an extensive vista of structural homologies to be determined and explained that anatomists began to devote themselves exclusively to the study of the evolution of the mere form and structure of animals, to the neglect of their functional attributes and the immense rôle which function plays in moulding the form of the body. Darwin's own work did not err in this way, but there can be no denying the fact that the very wealth of detail in structure which took on a new significance in the light of his magic touch had a narrowing effect on the outlook of anatomists.

These circumstances bred quite a new type of anatomist—the man who began to talk of his subject as a branch of learning worthy of being pursued "for its own sake" and not merely as the necessary technical training for the surgeon and the physician. This tendency to concentrate his attention upon pure morphology and to spurn the utilitarian aspect of his subject led the anatomist to strange lengths, and he hedged himself around with a barrier shutting out communications with the physiologist and the clinician and others who might corrupt the good manners of his new path of life. He quite overlooked the fact that in thus cutting himself adrift from considerations of function and in losing intimate touch with medicine and surgery he was really emasculating his subject and losing the virility which is necessary for its proper pursuit, not "for its own sake," but for the wider advancement of science in general.

I am glad to say there are now definite signs that the era I have just referred to is passing, if it is not quite gone, and that anatomists are now beginning once more to look upon the dead material of their research as something that has lived, and to realise that if any real progress is to be made structure and function must be studied hand in hand. We are returning to the methods of John Hunter, under the

[1] For the blocks illustrating this account I am indebted to the editors of the Journal of Anatomy and Physiology.

inspiration and guidance of Charles Darwin and all that has flowed from the fount of his genius. No fitter illustration of the blending of the influences of these two men could be desired than that provided in the galleries of this museum.

These considerations are not so irrelevant to the subject of these lectures as may appear at first sight; on the contrary, they are definitely pertinent to the discussion of the problems we are about to consider. No branch of biology has suffered more from the want of coöperation between anatomy, physiology, zoology, and comparative psychology than that which deals with the "organ of mind." A vast amount of labour has failed to yield its full reward to the investigator in this field of research because of the narrowness of his outlook. For want of a modicum of morphological knowledge the histologist has given utterly erroneous interpretations of the facts he has laboriously gathered together; the physiologist has often stultified the results of prolonged researches from the neglect to determine the zoological rank and relationships of the animals employed in his investigations or from a failure to inquire into the homologies of the part of the brain with which he is dealing; and the anatomist has been too prone to forget the study of minute structure and considerations of function.

If it were not liable to be considered invidious I might quote scores of specific illustrations of these paralysing factors in the current literature of the subject of these lectures. But I have said enough to illustrate my point, which is that no investigator, however restricted the field of his particular research may be, can afford to neglect the consideration of the wider bearings of his work.

In these lectures, which of necessity will deal only with the broad outlines of the structure of the cerebrum, I shall not pretend to look upon the morphological quest as the aim in itself. The real object of this inquiry is to determine the exact homologies of parts, so that the physiologist and the comparative psychologist may be guided in their investigations of the living brain, and may have the means of knowing the nature of the structures of which it is their business to investigate the functions.

If I leave many of the most significant problems unsolved I prefer to take this course rather than build up generalisations without proper foundation. There is perhaps no factor which is doing so much harm at the present moment in hindering advance in this subject as rash and misleading speculation.

In olden times the Greek philosophers came to realise that somewhere in the body there must be an organ where all the impressions collected by the different sense organs meet and react one upon the other, so as to produce that consciousness of the various properties of an object which everyone recognises. Many of these writers recognised that this organ must at the same time be the "storehouse" of impressions and the dominant organ of the body, with the power to quicken or restrain the activities of each and every part of the organism, in response, either directly or indirectly, to the impressions of the outside world pouring into this common sensorium. Aristotle gave clearest expression to this idea, but he favoured the heart as the seat of these psychical functions, which he at various times called the *πρῶτον αἰσθητήριον*, the *ἡγεμονικόν* (*caput humanae substantiae*), the *κύριον*, the *ἐγκρίνον*, and the *ἀρχή*, among many other names—a traditional view of cardiac function inherited from the most remote antiquity in Egypt.

The part of the body which in a far greater measure than any other shares these high attributes, the localisation of which the ancient philosophers for many ages sought in vain to establish, is that region of the cerebral cortex to which I have given the name "neopallium."[2]

In this lecture I shall attempt to establish upon a sure basis the means for instituting accurate comparisons between the mammalian and the non-mammalian cerebral cortex. With the knowledge thus gained I shall attempt, in the second lecture, to trace the evolution of the cerebral cortex up to the appearance of the neopallium, and in the last lecture to sketch certain aspects of the later development and specialisation of the neopallium within the mammalia.

The foundations of our knowledge of this part of the brain were really laid in this Museum more than 70 years ago, and out of the disputes which were waged here in subsequent years the first clear conception of the nature and origin of the neopallium has emerged.

On Oct. 31st, 1836, Professor Owen, who was then assistant conservator of the Museum and Hunterian professor of anatomy, presented to the Royal Society a memoir entitled "On the Structure of the Brain in Marsupial Animals," a work which will ever remain not only a landmark in the history of cerebral morphology, but also a model of the lucid and complete exposition of a difficult subject, so far as was possible at the time in which he wrote. Owen himself explains that he was led to make this important discovery of the structural peculiarities of the brain in marsupials from "a consideration of their habits and their inferiority of intelligence," but I believe that I have found a more obvious explanation of the initiation of this work. When I was helping in the preparation of the "Catalogue of the Collection of Brains" Mr. Davies Sherborn gave me some interesting manuscripts left by Owen, and among them was a memorandum dated Dec. 29th, 1835, addressed to the Council of this College, in which he informed the governing body that he had completed the [first edition of the] "Catalogue of the Brain Collection." Is it not much more likely that the memoir presented to the Royal Society nine months later was the outcome of the work incidental to the writing of the "Descriptive Catalogue" rather than of transcendental speculations suggested by watching kangaroos in the Zoological Gardens?

Upon the table before me are the specimens used by Owen in his research, the dissections made by him to prove and demonstrate the truth of his contention; here also is the account of them in the "Philosophical Transactions" for 1837; and some of these wall diagrams were prepared by him to explain his discoveries to the Royal Society and in the Hunterian lectures delivered here.

After giving a very succinct and clear account of the nature and essential features of the corpus callosum, fornix, and septum lucidum in the human brain, and the changes observed in the latter two bodies in the lowlier mammalia, which are associated with the enormous reduction of the size of the corpus callosum, Owen called attention for the first time to the peculiar features of the fornix and the apparent absence of a true septum lucidum and corpus callosum in the marsupialia "to the detection of which [he] was led by observing that the commissural system presented the essential difference between the brains of the oviparous and mammiferous vertebrata" (op. cit., p. 89).

Owen proceeds:—

> In order to obtain satisfactory proof of the difference in the structure of the brain in the marsupial and placental quadruped, I dissected and compared together, step by step, the brains of a Wombat and Beaver. These animals, as is well known, are of nearly similar bulk, and manifest so many mutual affinities in their structure, that they have been, and still are, by some naturalists, classed in the same order of Mammalia. The Wombat is, in fact, in all its exterior characters, save the marsupial pouch, a Rodent; and in its internal anatomy, especially its digestive organs, more nearly resembles the Beaver than do many of the true rodent animals.
>
> The brain of the Beaver was also preferred for this comparison of internal organisation, because on an outward inspection it would be pronounced to be the less highly organised of the two; the hemispheres in the Wombat presenting a few convolutions, whilst in the Beaver they are perfectly smooth (pp. 89 and 90).

On separating the beaver's hemispheres the corpus callosum is seen: it completely hides the optic thalami from view.

> On separating the hemispheres of the brain of the Wombat, not only the bigeminal bodies and pineal gland, but the optic thalami are immediately brought into view, and instead of a broad corpus callosum, we perceive, situated deeply at the bottom of the hemispheric fissure, a small commissural medullary band passing in an arched form over the anterior part of the thalami, and extending beneath the overlapping or mesial surfaces of the hemispheres, which thus appear, as in the Bird, to be wholly disunited.
>
> On gently raising the hemispheres from above the commissure, and pressing them outwards with the handle of a scalpel, the instrument passes into the fissure upon which the hippocampus is folded; and on continuing the pressure the hippocampus is torn through, and the lateral ventricle is exposed (op. cit., p. 90).

He then goes on to explain that all the fibres of this commissure in the wombat's brain pass into the hippocampt majores and that it forms a bond of union between these hippocampi; it is, in fact, "a hippocampal commissure or fornix" (p. 91). He clearly distinguishes between these commissural fibres of the fornix and the longitudinal fibres, which form "a bond of union between the hippocampus and anterior lobe of the same hemisphere in the longitudinal direction." [Reference to Figs. 3, 4 and 5, *infra*, will make this account more intelligible. Fig. 3 represents the inner aspect of the right cerebral hemisphere of a marsupial

[2] The Natural Subdivision of the Cerebral Hemisphere, Journal of Anatomy and Physiology, vol. xxxv., July, 1901.

(Phascolarctos)—*w* is the commissure which Owen showed to be hippocampal, being derived from the fornix, *f*, which in turn comes from the extensive arc of hippocampal formation, of which the fascia dentata (*d*) alone is visible on the surface. Fig. 5 represents the mesial aspect of the right half of the brain of a platypus, cut in mesial section—*comm. dorsal.* is the hippocampal commissure. Note the position of the anterior end of the fascia dentata (*fasc. dent.*). Fig. 4 is a transverse section through the cerebrum of a marsupial (*Perameles*)—*w* is the hippocampal commissure and *h* the hippocampus.]

It also fulfils the other function of the fornix by sending down from the inferior surface two small nerve-like processes, which extend vertically, behind the anterior commissure, through the substance of the optic thalami, near their mesial surfaces, to the corpus albicans, at the base of the brain (pp. 90 and 91).

With the object of clearly exposing the contrast beween the wombat's and the beaver's brain, Owen made use of a perfectly legitimate illustration, which was afterwards seized upon by his critics and distorted into an erroneous interpretation, for which there is absolutely no ground in Owen's memoir. He pointed out that the beaver possessed a hippocampal commissure like the wombat, but that above it there was in addition (in the former but not in the latter) a septum lucidum and a corpus callosum. Hence, he argued, if you cut away the lateral wall of the cerebral hemisphere in a beaver's and in a wombat's brain and "thrust a style through the mesial wall of the hemisphere" immediately above the anterior end of the hippocampus, the style will be visible between the hemispheres (when divaricated from above) in the wombat but not in the beaver.

The 30 years that followed the publication of Owen's memorable work produced many distinguished supporters of his views, but also witnessed not a few attacks upon his conclusions. But his teaching was not seriously challenged until the year 1867, when one of his successors in the conservatorship of this museum was responsible for turning the whole tide of scientific opinion against him in regard to this matter.

It is difficult to realise how Professor Flower's repudiation of his predecessor's work came to obtain such wide recognition, unless we take into consideration the circumstances under which it was accomplished. For Professor Flower barely mentioned Owen's main argument and relied mainly on points of merely forensic value such as carry little weight in most scientific controversies.

For two years before the publication of Darwin's "Origin of Species" in 1859 there had been a growing feeling of antagonism between Owen and Huxley: the glowing embers of this dispute were fanned into a furious conflagration amidst the controversies waged around that book, because the importance and significance of the subjects which had aroused the original antagonism became magnified a thousandfold when they became the chief weapons of militant leaders of the opposing factions in the dispute on the Darwinian question. It is difficult for us of the younger generation to-day to realise the intensity of the feelings aroused by this discussion in the early "sixties," even though we have such admirable pictures of it as those contained in the "Life and Letters of Huxley." But if the scientific world at large was stirred to its depths in the manner so incisively and piquantly illustrated in that recently published document, "Father and Son," how must Huxley and Owen have been affected by it, when we recall that in entering upon the dispute they were reopening the old sores of their recent conflicts.

In the year 1857 there was published in the *Journal of the Linnean Society* a memoir by Owen entitled, "On the Characters, Principles of Division, and Primary Groups of the Class Mammalia," in which it was maintained (in direct opposition to the general consensus of comparative anatomists of that time) that "the posterior development [of the human cerebral hemisphere] is so marked that anatomists have assigned to that part of the character of a third lobe; it is peculiar to the genus homo, and equally peculiar is the posterior horn of the lateral ventricle and the 'hippocampus minor,' which characterise the hind lobe of each hemisphere." Owen repeated these extraordinary statements in the Reade lecture delivered in Cambridge in the year Darwin's famous book was published, but when he reiterated them at the memorable meeting of the British Association in Oxford in the following year they could no longer be allowed to remain unchallenged, because their importance became enormously enhanced when they were urged as the evidence in chief of the opponents of Darwin. Huxley, therefore, to quote his own words,[3] "immediately gave them a direct and unqualified contradiction, pledging [himself] to justify that unusual procedure elsewhere." He redeemed the pledge the following year (1861) in the January number of the *Natural History Review*. Before leaving this question of the hippocampus minor I must add that during the course of my work on the catalogue ten years ago I discovered that the structure in question could not be regarded even as a distinctive feature of the Primates, but was to be looked upon rather as a common mammalian character. The reason for this I shall explain in the third lecture.

"So far from retracting the grave errors into which he had fallen, Professor Owen persisted in and reiterated them in a lecture at the Royal Institution in 1861," in a correspondence in the *Athenæum* and at the meeting of the British Association in that year. Several continental anatomists repudiated Owen's claim to their support, and Professors Allen Thomson, Rolleston, Marshall, Huxley, Turner, and Flower devoted special memoirs to disprove Owen's contention; Owen once more revived the question at the British Association in 1862.

Widespread interest, extending far beyond scientific circles, was aroused by this controversy, and, to quote Huxley's biographer, "scientific technicalities became the catchwords of society, and the echoes of the great hippocampus question linger in the delightful pages of 'The Water-Babies'" and in *Punch* to remind us how great a stir this dispute aroused. I cannot refrain from quoting a paragraph from Charles Kingsley's book in reference to this matter:—

He [the Professor] held very strange theories about a good many things. He had even got up once at the British Association and declared that apes had hippopotamus majors in their brains just as men have. Which was a shocking thing to say; for, if it were so, what would become of the faith, hope, and charity of immortal millions? You may think that there are other more important differences between you and an ape, such as being able to speak, and make machines, and know right from wrong, and say your prayers, and other little matters of that kind; but that is a child's fancy, my dear. Nothing is to be depended upon but the great hippopotamus test. If you have a hippopotamus major in your brain you are no ape, though you had four hands, no feet, and were more apeish than the apes of all aperies. ..... Always remember that the one true, certain, final, and all-important difference between you and an ape is that you have a hippopotamus major in your brain and it has none. ..... If a hippopotamus was discovered in an ape's brain, why, it would not be one, you know, but something else.

It was in such an atmosphere of battle, when the scientific world was divided into two hostile camps, a small coherent, but very active band, led by Huxley in opposition to the larger group relying mainly upon the weight of their authority in science, with Owen as their figurehead,—it was in such circumstances that Professor Flower turned his attention to Owen's earlier work. At such a time one would hardly expect, nor does he find, that the conditions were conducive to calm, properly balanced scientific discussion.

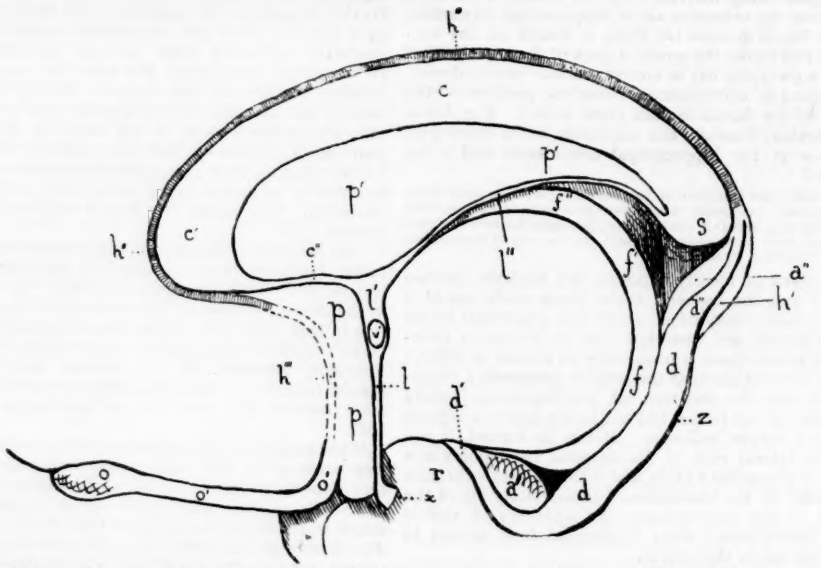
Huxley himself had taken the chief part in demolishing Owen's recent work, but he had associated with him in the attack a group of younger anatomists, amongst whom was Flower. Fresh from the successful attack on the question of the hippocampus minor, which Owen had magnified into a distinctive barrier separating man from the apes, Flower next attempted to wipe away what seemed to be another barrier raised by Owen between two groups of mammals. But in the heat of the quest Flower displayed more zeal than discretion. It is significant that Huxley himself refrained from participating in this later attack on Owen's work, for one could hardly have imagined him, even in the height of battle, using arguments so casuistical as those employed by Flower. At the same time it seems clear enough that if Huxley himself did not lead the fresh onslaught on Owen's position he gave the hint for it when he wrote:

The subject requires careful re-investigation, but if the currently received statements are correct, the appearance of the corpus callosum in the placental mammals is the greatest and most sudden modification exhibited by the brain in the whole series of vertebrated animals—it is the greatest leap anywhere made by Nature in her brainwork.[4]

The note of incredulity suggested in the statement of the vastness of the chasm which had to be bridged if Owen's work of 1836 were really true was quite a sufficient hint to Flower to turn the light of the most searching criticism into another corner of Owen's domain. But in his zeal he went

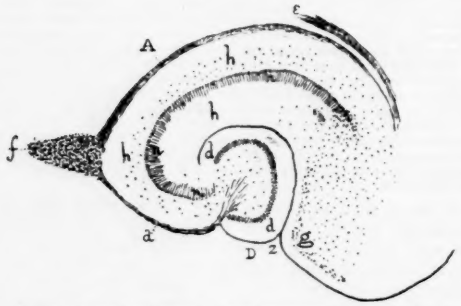
[3] Man's Place in Nature, 1863, p. 114.
[4] Evidence as to Man's Place in Nature, 1863, p. 95.

FIG. 1.



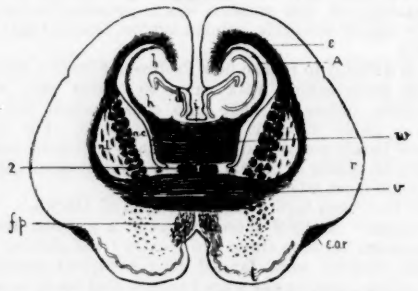
Scheme of cerebral commissures, and the margin of the cortex of the human brain. *d*, Fascia dentata. *h'*, *h''*, *h'''*, Hippocampus and vestiges of it. *o*, *o'*, Olfactory bulb and peduncle. *p*, *p*, Paraterminal body. *p'*, *p'*, Its septal part (septum lucidum). *f*, *f'*, *f''*, Fimbria and fornix. *l*, *l'*, Lamina terminalis. *l''*, Psalterium.

FIG. 2.



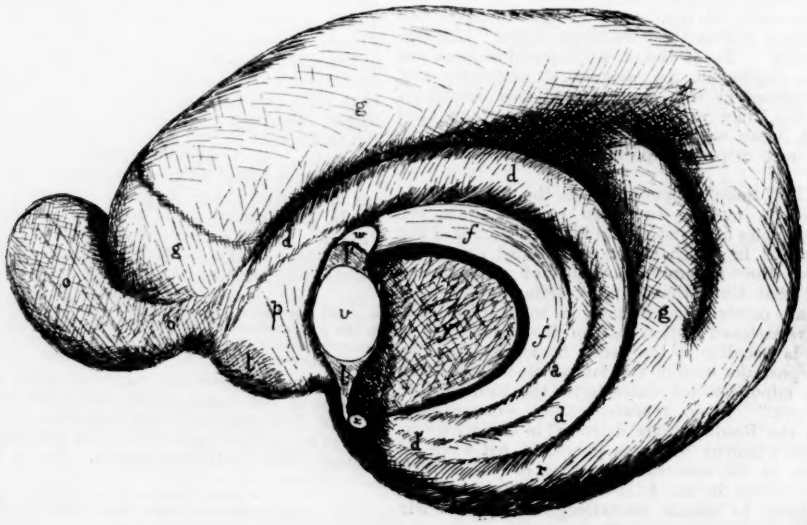
cheme of a section through the hippocampus of a rabbit, at right angles to its long axis. *h*, *h*, Hippocampus (*sensu stricto*). *d*, *d*, Fascia dentata. *f*, Fimbria.

FIG. 4.



Coronal section of cerebrum of a marsupial passing through the two cerebral commissures. *w*, Hippocampal commissure. *d*, Fascia dentata. *h*, *h*, Hippocampus.

FIG. 3.



Mesial surface of the cerebral hemisphere of a marsupial. *d*, *d*, *d*, Fascia dentata. *w*, Hippocampal commissure. *f*, *f*, Fimbria or fornix. *o*, *o'*, Olfactory bulb and peduncle. *p*, Paraterminal body.

too far and attempted to utterly demolish a position which was really unassailable.

Only by realising the circumstances of the times and the excitements of the fray can we form any just conception of how Professor Flower and those whom he converted to his opinion could have been satisfied with the arguments, plausible and forensically skilful though they be, which he set forth in 1865.[5]

In the statement of his case in 1836 Owen put the issue quite simply and fairly. He stated in effect that the upper commissure of the placental mammal's brain consists partly of fornix fibres (the psalterium) derived from the hippocampus and partly of fibres coming from other cortical areas, whereas the upper commissure in the marsupial is *wholly* derived from the hippocampus (see Fig. 4); it is a fornix-commissure or psalterium and not a corpus callosum, *sensu stricto*. To make the matter clear to his readers he described several devices in dissection for demonstrating the contrast between the two types of brain. Flower seized upon these illustrative comments and chance phrases, which were not part of Owen's argument, and while attempting to demolish them gave only the scantiest consideration to Owen's real argument—namely, that the dorsal commissure of the marsupial brain is not a corpus callosum but a hippocampal commissure (psalterium), *because it derives its fibres entirely from the hippocampi*.

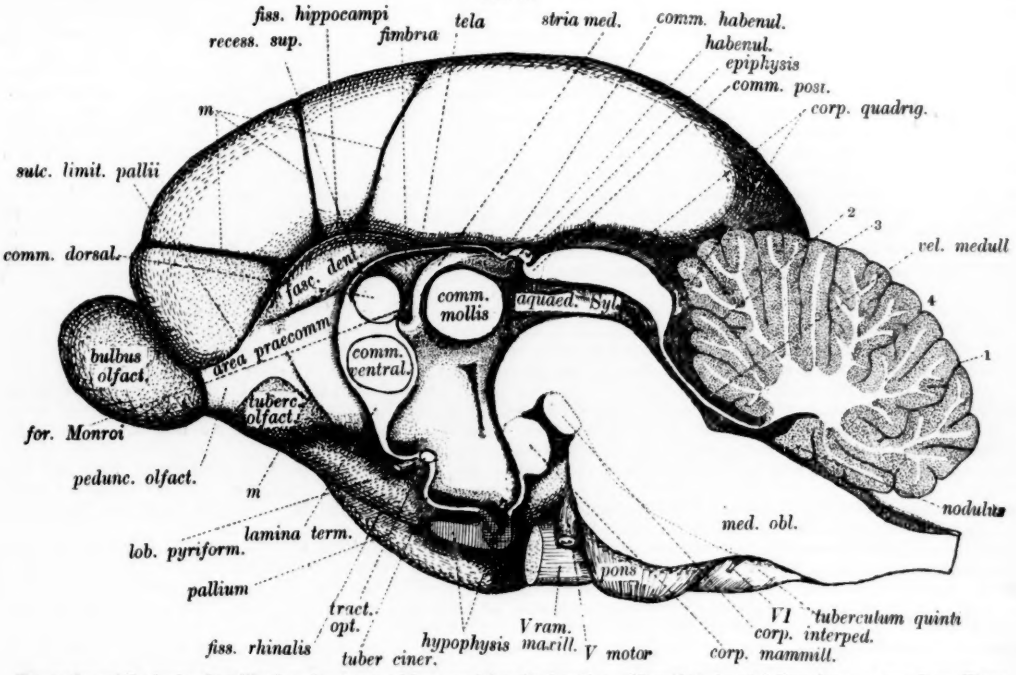
In the very few remarks in which Flower refers to this, the main issue, he begs the whole question when he puts the amazing query, "Granted that only the psalterial fibres are represented in the upper commissure of the marsupial brain, why should the name of 'corpus callosum' be refused to it?"[6] For if the dorsal commissure be psalterial it cannot justly be regarded as the homologue of a bundle of fibres which is mainly non-psalterial. The use of such an argument illustrates Flower's intense desire to prove his case and justify the anticipations of Huxley. However, he would not admit that the upper commissure of the marsupial was wholly psalterial, but maintained that there were fibres, not derived from the hippocampus, coming from the anterior part of the mesial hemisphere wall of the marsupial brain. A similar contention has been urged in recent times by C. L. Herrick, Ziehen, and Zuckerkandl among others, without, as it seems to me, any proper justification for their beliefs. But Flower's argument does not fall into exactly the same category as Ziehen's and Zuckerkandl's, for it is not altogether clear that he was prepared to admit the hippocampal nature of the anterior part of the hippocampus in the marsupial. Owen frankly and clearly recognised the identity of the whole hippocampus. In Flower's dissections, some of which, collected in the storeroom, are now on the table before me, the characteristic features of the hippocampal structure of the anterior part of the arc in question are most distinctly, even obtrusively, displayed. Yet in none of Flower's figures is any trace of this distinctive structure shown, nor in his text is there anything to make it clear that the inrolled cortex above the dorsal commissure (compare Fig. 4, *h h*) is really hippocampus.

Owen showed great perspicuity when in 1836 he explained that the peculiarity in the commissures of the marsupial helped to bridge the gap between the brain structure of what he called the oviparous vertebrata and the mammalia. If Huxley and Flower had only realised this fact they would have looked upon the marsupials as supplying a valuable link in the chain of events the former was so actively engaged in elucidating.

Thus the dorsal commissure of the brain in the marsupialia and monotremata came to be branded "corpus callosum," and no one reading the plausible account of it in Flower's memoir would realize that the area from which its fibres sprang was hippocampus. Once anatomists became convinced that the corpus callosum was present in the lowliest mammals it was only natural that the search for it in the non-mammalian vertebrata should begin. Huxley again seems to have given the word for the search, when, half jestingly, he told Professor H. F. Osborn, about to begin the study of the amphibian brain, to look out for the corpus callosum.[7]

During the 20 years that intervened between the work of Flower and Osborn many memoirs had appeared suggesting

FIG. 5.



The surface of the brain of ornithorhynchus, exposed by a mesial sagittal section. Magnified almost 4 diameters. *comm. dors.*, Hippocampal commissure. *fasc. dent.*, Fascia dentata. *comm. vent.*, Anterior commissure.

[5] On the Commissures of the Cerebral Hemispheres of the Marsupialia and Monotremata as compared with those of the Placental Mammals, by William Henry Flower, conservator of the Museum of the Royal College of Surgeons of England. Philosophical Transactions, 1865, pp. 633-651 (received by the Royal Society on Jan. 24th, 1865).

[6] Op. cit., p. 648.

[7] The Origin of the Corpus Callosum, Morphologisches Jahrbuch, 1887.

or refuting the idea of the existence of the corpus callosum in the reptiles, amphibians, and other lowly vertebrates, but the literature was in a state of great confusion. Osborn's work has the great merit that it brought order out of this confusion and demonstrated with the utmost lucidity the existence in birds, reptiles, and amphibians of commissural bands, arranged like those of the monotremes and marsupials. He was led astray, however, by Flower's teaching, from the influence of which even his own investigation of the structure of the marsupial brain did not exempt him, and thus he came to claim the callosal nature of the dorsal commissure in the whole vertebrata. Incidentally, but from my present point of view the most disastrous result of this generalisation, his work prevented most anatomists from identifying the area of origin of this commissure in the lowlier vertebrata as the homologue of the hippocampus.

Although on other grounds several anatomists began to suspect the hippocampal nature of the upper part of the mesial wall of the reptilian hemisphere, it was not until the teaching of Flower was overthrown in 1892 that it became possible to provide a sure basis for the establishment of this homology and the complete reversal of Osborn's generalisation. For seeing that Professor Osborn had conclusively shown the dorsal commissure in birds, reptiles, and amphibians to be homologous with that of monotremes and marsupials, once the latter was shown to be purely hippocampal and not a true corpus callosum, Osborn's demonstration of the homology of the commissure in the lowlier vertebrata still remained valid, but came to bear the new interpretation that it also was hippocampal and the area from which it sprang was presumably hippocampus. This is the fundamental factor in comparisons of the cerebral cortex in mammalian and non-mammalian vertebrata.

In 1892 Professor Johnston Symington, working with modern histological methods, demonstrated that Owen was right after all when he called the dorsal commissure of the marsupial "hippocampal" or "psalterial." This was the real starting-point for the recent great development of our knowledge of the morphology of the cerebral cortex. [It is surprising to relate that in a work[8] just published, of which the anatomist who gave this new direction to research is one of the editors, there is no reference either to his own work or to the far-reaching results in the domain of cerebral morphology which have followed in its train.]

In 1894 I began the study of the anatomy of the brain in the marsupialia and monotremata,[9] and it is the results of that investigation and what it led to, especially in the work done in this Museum, of which I propose to speak in these lectures.

If one examines the mesial aspect of the human cerebral hemisphere he will find, close alongside the place where the choroid plexus of the descending horn of the lateral ventricle is invaginated in the latter cavity, a curiously notched band of grey matter, the fascia dentata or gyrus dentatus (Fig. 1, *d*), which stretches from the uncus (*a* and *r*) to the posterior end of the corpus callosum (*s*). If the lateral ventricle is opened the large swelling known as the hippocampus will be found to be co-extensive with the fascia dentata on the surface, and from sections cut through the whole hippocampal formation we realise (Fig. 2) that the fascia dentata (*d*) is merely a peculiarly specialised cortical fringe placed on the margin of the inrolled hippocampus (*h*).

If we examine a large series of mammalian brains, such as the magnificent collection in the galleries of this Museum, it will be observed that the corpus callosum is subject to very great variations in length in different creatures, but that, however far forward the posterior end of the corpus callosum may be withdrawn as it were, when contrasted with that of the human brain, the upper end of the hippocampal formation will always be found in contact with the splenium of the corpus callosum.

But when we turn to examine the brain in the marsupialia (Fig. 3) and monotremata, in which the callosal fibres have disappeared from the dorsal commissure (*w*), we find that the hippocampus (*d* refers to the fascia dentata) does not cease at the latter, but passes forward above it (in continuation of the arc formed by the posterior part of the hippocampus) and bends down in front towards the insertion of the olfactory peduncle (*o*) in front of the lamina terminalis (*l l'*). This arrangement explains why it is that a fully developed hippocampal formation (Fig. 4, *h*) is exposed *above* the dorsal commissure (*w*) in any marsupial or monotreme brain when a vertical transverse section is cut, say, through the region of the anterior commissure (*v*).

The close (topographical) association of the caudal extremity of the corpus callosum and the upper end of the hippocampal formation, however much the former may vary in position, suggests that the development of the great commissure has exercised a disturbing, if not destructive, effect upon the anterior part of the great hippocampal arc, which lies upon, or in front of, the corpus callosum. The results of the study of the development of this part of the brain in man and other mammals, and the comparison of the histology of the structures bordering on the corpus callosum, especially in such lowly mammals as the insectivora, chiroptera, and edentata, go far to establish the truth of this suggestion. In every mammal possessing a corpus callosum we find upon the upper surface of the latter commissure some remnant of this upper part of the hippocampus (Fig. 1, *h''*). This vestige of the hippocampal arc does not stop even at the anterior end of the corpus callosum, but passing around the genu extends downward (Fig. 1, *h'''*) towards the place where the stalk of the olfactory bulb (*o'*) is inserted into the cerebral hemisphere. These supra- and pre-callosal remnants of the hippocampus usually take the form of a small flattened plate of cells and they represent a greatly reduced hippocampal formation from which the fascia dentata has disappeared.

Thus we find in all mammals that the mesial edge of the cerebral cortex in the whole of its extent, from the neighbourhood of the olfactory peduncle in front to that of the tip of the descending limb of the lateral ventricle (behind and) below, is fringed by some representative of the hippocampal formation.

Thus it is certain that in the ancestors of the mammalia there must be something of the nature of a hippocampus fringing the whole of the mesial edge of the cerebral cortex. Investigations such as those initiated by Osborn have demonstrated the homology of the upper commissure in birds, reptiles, amphibians, and certain fishes with the marsupial commissure which we now know to be hippocampal.

By employing these two convergent lines of inquiry we have obtained positive and irrefutable proof of the identity of the hippocampal formation in the whole vertebrata.

By the application of this knowledge I hope in my next lecture to be able to sketch the broad outlines of the evolution of the cerebral cortex, so as to explain the origin of that part of it which more than any other deserves the title "organ of the mind"—the neopallium.

(Fig. 5, representing the mesial aspect of the right half of the brain of platypus, will enable the reader to locate the structures in the monotreme brain referred to in this lecture. The hippocampal commissure (*comm. dorsal.*), the anterior commissure (*comm. ventral.*), and the cephalic end of the fascia dentata (*fasc. dent.*) will afford the chief guiding points.)

[8] Quain's Elements of Anatomy, eleventh edition, vol. iii., part 1, 1908.

[9] A Preliminary Communication upon the Cerebral Commissures of the Mammalia, with Special Reference to the Monotremata and Marsupialia, Proceedings of the Linnean Society of New South Wales, vol. ix. (Series II.), pp. 635-657, October, 1894.

THE INTERNATIONAL HOME EDUCATION CONGRESS.—In connexion with the Home Education League, which was founded in 1899 with the object of securing closer association between parents and teachers in the study and practice of educational methods, the Third International Congress and Exhibition will be held in Brussels from August 21st to 25th, 1910. The Marquess of Londonderry has accepted the Presidency of the central committee for the United Kingdom. Among the subjects which will be discussed at this Congress are the Study of Childhood, the Education of Children in School, in the Home both Before and After School, and the Question of the Treatment of Abnormal Children. The Congress ticket, price 8*s.* 6*d.*, gives the holder free entrance to the exhibition and entitles him to a copy of the official reports. Further particulars can be obtained from the honorary secretary, Miss Kyle, Highbury Hill High School, Highbury, London, N.

A Clinical Lecture

ON

SOME POINTS IN THE CLINICAL HISTORY OF PNEUMONIA.

Delivered at the Medical Graduates' College and Polyclinic on Dec. 14th, 1909,

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GENTLEMEN,—I confess to feeling guilty of rashness in venturing to give a clinical lecture about pneumonia, the subject is so large and yet so well-worn. But I think I can plead extenuating circumstances. Pneumonia is one of the commonest of all the acute infections and must always possess an absorbing interest for all practitioners of medicine. In many respects it is one of the most remarkable of all diseases, ushered in so often by striking symptoms, running a short course, and ending often, for good or ill, with dramatic suddenness. What I have to say of pneumonia refers only to the lobar variety depending on the invasion of the pneumococcus.

It is well recognised that the incidence of pneumonia is markedly affected by the prevalence of influenza at certain seasons; in other words, influenza prepares the ground for infection by the pneumococcus and predisposes to pneumonia. I feel convinced, however, that there is a tendency, more especially in private practice, to diagnose a combination of the two diseases when pneumonia constitutes the one and only infection. I find since writing this that Coupland and Sturges in their excellent treatise on pneumonia make a similar statement. The mistake generally arises in this way. A patient is taken ill with general febrile symptoms, headache, aching in the limbs, and malaise, associated with a high temperature, but no symptoms or signs of pulmonary disease. The case is not unnaturally regarded as one of influenza, more especially if there should happen to be an epidemic at the time. When physical signs of pneumonia appear, perhaps as late as the fourth or fifth day, pneumonia is said to have supervened on influenza. This may be a correct interpretation in some cases, but I believe that such a sequence of events is not so common as some would have us believe. Pneumonia complicating influenza more often develops after there has been some remission of symptoms, and the complication is often attributed to the patient getting up or going about his work too soon. The danger of pneumonia when it follows influenza is a grave one, and unless the habit of attributing the early symptoms to influenza be guarded against the difficulties of prognosis must be largely increased. I am satisfied that a large proportion of the cases described as influenzal pneumonia are nothing more than cases of pneumonia with an insidious onset and late development of physical signs.

It may not be out of place at this point to emphasise a fact which is mentioned in all text-books—that a fair proportion of cases of pneumonia begin insidiously. I do not now allude to the case of old people, renal patients, or the insane, in whom an insidious onset is almost the rule. I am thinking of young, healthy patients, where a vague history of illness extending over some days may rouse suspicions of typhoid fever or acute generalised tuberculosis. I have met with several instances of this sort where pneumonia had never been suspected, and was only detected in the course of repeated routine examination.

In its most characteristic form pneumonia in adults develops with a rigor which varies somewhat in intensity. The occurrence of successive severe rigors is said by Dr. P. H. Pye-Smith and Dr. A. P. Beddard in Allbutt and Rolleston's "System of Medicine" to indicate a very severe infection. This, no doubt, is true generally, but it is not true universally. Thus, a young man, aged 27 years, recently under my care in the London Hospital, who gave a clear history of having had four successive rigors, developed signs of pneumonia of the right lower lobe, and the disease terminated by crisis on the second day. The following is a brief account of the case:—

CASE 1.—In the afternoon of June 21st the patient felt poorly and had a headache and loss of appetite. The same evening he woke up with sharp pains in the right side and had four successive shivering fits. Next morning, June 22nd, he went to work in spite of pain in the side with some cough and expectoration. But he had to give up work and came to the hospital at noon the same day with a temperature of 103° F. Signs of pneumonia of the right lower lobe were found. By midnight on the 22nd the temperature had fallen to 101°; at 4 A.M. on the 23rd it was 98·6°. After this there was no further rise of temperature, and rapid recovery ensued.

Here the crisis appeared about 36 hours after the first sensation of illness.

I have met with several instances of a favourable course when the patients had had several rigors. I am inclined to think that repeated rigors are less uncommon than is usually thought. Rigors occurring in the course of the disease are ominous, and generally announce some complication. In young children shivering is very uncommon. Vomiting has been said to represent the initial rigor of adults. Vomiting at the outset may be very severe, as in the case of a little girl, aged 7 years, that I saw recently. Here the illness began, as her mother said, with "vomiting all day and all night." In spite of this stormy prelude the disease ran a short and benign course.

Abdominal pain is a well-known mode of invasion in young children, associated sometimes with tenderness and rigidity in the right iliac fossa sufficient to excite a suspicion of appendicitis. I have come across several cases of this kind. Recently I had under my care at the London Hospital a lad of 16, who was admitted into a surgical ward with the diagnosis of appendicitis. The symptoms were pain and tenderness in the right iliac fossa. The absence of rigidity of the abdominal wall was thought to exclude appendicitis, and the patient was transferred to my care. We found signs of pneumonia affecting the posterior surface of the right upper lobe and the apex of the lower lobe. The case terminated favourably by crisis on the twelfth day.

Pneumonia may be introduced by *symptoms of meningitis* ("meningism"), headache, retraction of the head, photophobia, and stupor, which may be very misleading. This method of invasion is not very rare in children, and I have seen several examples. But in adults this is rarely met with. Last year a case was admitted into the London Hospital presenting such unusual features that I think it worthy of a short description.

CASE 2.—A man, aged 29 years, a baker, was admitted on Feb. 1st complaining of severe pain in the head, mostly on the right side over the ear and forehead. The headache began on Jan. 29th at 3 A.M., while he was working in the bakery. He had to stop work and lie down, and he had several rigors. At 6 A.M. he was carried home, as his legs gave way under him. He went to bed and sent for a doctor who gave him some medicine. But the patient could get no relief from the headache, which slowly got worse. On Feb. 1st the doctor sent him to the hospital. He described the headache as a series of acute shooting pains following in rapid succession. When the pain went a soreness was left which spread into the right shoulder.

On admission the patient was evidently suffering very great pain. The pulse was 104, respiration 28, and temperature 101° F. The heart and lungs were normal, eyes and ears normal. The pain became almost continuous and was only relieved by injections of morphia. On Feb. 3rd (the sixth day of his illness) the temperature fell from 103° to 98°, but there was no improvement in his general condition. The pain in the head now went down the right arm to the elbow, right side of the chest, and right leg to the knee. On this day for the first time slight dulness was detected at the base of the right lung. Pneumonia was now diagnosed. The symptoms at first suggested meningitis, but the appearance of signs of pneumonia complicated matters. My colleague, Dr. Henry Head, saw the patient with me and thought the pain might be related to pneumonia, though he had never seen pain of such severity and such wide extension in pneumonia. On Feb. 4th the pain remained as severe as before. The heart's apex beat was in the mid-axillary line. The dulness at the right base was more marked, reaching the spine of the scapula. As the signs indicated fluid the right pleura was aspirated, but only 6 ounces of blood-stained fluid were obtained. The next day the pain became less after several injections of morphia, but the patient was very exhausted and dyspnœic and died early on Feb. 6th, the ninth day of the disease.

The necropsy showed the following appearances: Pneumonia of the right lower lobe, red hepatisation with hæmorrhagic areas; purulent pleurisy on both sides; about 10 ounces of pus in each pleural sac; mediastinal tissues œdematous; localised fibrinous peritonitis; membranous laryngitis affecting sinus pyriformis on each side; parenchymatous degeneration of the kidneys and liver; brain membrane and middle ears normal.

One of the most uncommon initial symptoms is *hæmoptysis*, meaning by this a free hæmorrhage, not merely blood-stained expectoration. My attention was first directed to this mode of onset by a paper published in THE LANCET in 1886 by Dr. Donald Hood, who described several instances. I have seen only two or three examples myself, in two of which I have notes.

CASE 3. *Onset with hæmoptysis.*—The patient, a clerk, aged 22 years, was admitted on May 4th, 1909. The previous history showed diphtheria only. He was quite well till 5 P.M. on the 3rd, when he suddenly experienced a severe pain in the back, which was increased by inspiration. His hands felt numb and cold, he "could hardly move them," and he put them into hot water to get them warm. Between 9 and 10 P.M. he began to cough up blood mixed with frothy saliva. On admission at 2 A.M. on May 4th he was pale and breathing rapidly, heart's action very excited, and he was coughing up blood mixed with frothy sputum. The respirations were 40, temperature 101·6° F., and pulse 120. A systolic murmur was heard at the apex and base of the heart on admission, but this had disappeared later in the day. Hæmoptysis ceased in about 12 hours, the total quantity of blood expectorated while in the hospital being about 8–10 ounces. Physical signs of consolidation of the left lower lobe were detected on May 6th, and on this day herpes-labialis appeared. A systolic murmur was again heard at the apex, but was only slightly conveyed upwards and outwards. Defervescence took place on the fourth day of the illness, but dulness at the left base became more marked and on paracentesis a small quantity of blood-stained fluid was removed. The patient made a good recovery and was discharged on June 8th, slight dulness remaining at the left base.

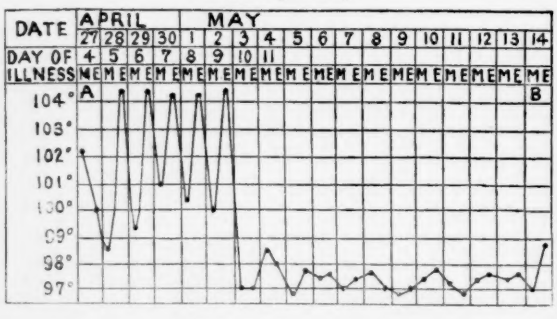
CASE 4.—A girl, aged 13 years, was admitted into the hospital on account of hæmoptysis and pain in the left side. On admission the child was spitting up abundant bright fluid blood, and signs of pneumonia of the left lower lobe were present. A systolic murmur was heard at the base of the heart at first, but subsequently disappeared. A well-marked crisis occurred on the fourth day, and rapid recovery followed.

Hæmoptysis is probably to be explained, as Dr. Hood suggests, by the intense preliminary engorgement of the early period. The possibility of an old tuberculous lesion must always be carefully considered. But in both the two foregoing cases there was no evidence of any apical disease and complete recovery took place. In the first case the variable systolic murmur raises the question of a mitral lesion, but the existence of valvular disease was very doubtful. Dr. Hood is inclined to connect hæmoptysis in such cases with pneumonia of the upper lobe. In both my cases the lower lobe alone was affected.

Fever.—The most common form of fever is the continuous with slight morning remissions of 1° to 1·5°. But there may be much greater remissions, and the pyrexia may even be intermittent and very irregular. This point is insisted upon by Coupland and Sturges, who cite several good examples. I doubt whether this variety of fever is sufficiently recognised, for I have on more than one occasion found that an intermittent temperature chart has caused much alarm and anxious forebodings as to masked complications when the disease was running a normal course in other respects. Dr. Hood in his lectures on Some of the Clinical Aspects of Pneumonia expresses the opinion that irregularities of temperature are the result of a combined infection with influenza. I cannot believe that this is generally true, though some cases may be explained on this hypothesis. A striking case of pneumonia with intermittent temperature quoted by Coupland and Sturges occurred in 1885 before the first epidemic of influenza of recent times appeared. The following is a good specimen from my own experience:—

CASE 5.—A youth, aged 20 years, a painter, was admitted into the London Hospital on April 27th, 1900. Patient was taken ill three days ago, with

CHART 1 (CASE 5).



sharp pain in the left side like "pneumonia" (he had suffered from pneumonia six or seven years previously); he shivered more than once and sweated freely. On admission there were signs of pneumonia, at first affecting the lower part of the upper lobe, but subsequently involving the lower lobe also. The temperature was of intermittent type, varying from 104° to 98° F. (See Chart 1). A well-marked crisis occurred on the tenth day, the temperature falling from 104·4° to 97°, and the patient rapidly recovered.

Physical signs.—With regard to the physical signs of pneumonia, there is little that need be said. Among the earliest signs I should place deficient entry of air into some section of the lung. The crepitant râle of Laennec or fine crepitation is not a very common or a very important sign. The early recognition of tubular breathing is greatly facilitated by direct auscultation without a stethoscope, especially where the posterior surface of the chest is concerned. I have often been able to recognise tubular breathing with the ear applied directly to the chest when I could not hear it with any form of stethoscope. I am afraid the binaural stethoscope has almost driven out this valuable method of auscultation in England. I have long endeavoured to impress this on my clinical clerks and house physicians by actual demonstration, and I have sometimes been able to convince them of the value of the direct method. But those who have been brought up exclusively on the binaural stethoscope seldom hear well with anything else.

A point that I should like to insist upon is that the presence of crepitations over a dull area does not exclude fluid. I have several times heard crepitation over an empyema and a serous effusion. The practical importance of this is that we should not be deterred from exploring the chest for fluid in a suspected case because we heard crepitation over the dulness. I have known an empyema left unopened for some weeks on this account, the presence of crepitation having led to the diagnosis of pulmonary tuberculosis. In children, and less often in adults with thinly covered chest walls, I have, from time to time, met with instances when tubular breathing seemed to be conducted from a consolidated base to the opposite healthy lung. It is, of course, difficult to prove that the apparently healthy base was not also, to some extent, solidified. But against this view must be put the absence of any dulness to percussion and the generally brief persistence of the above sign.

It must have struck all of us that redux crepitus is a comparatively uncommon sign in resolving pneumonia. My experience has been that this crepitus is more often absent than present. Considering that resolution is almost entirely effected by absorption of the liquefied alveolar exudation we might expect to hear crepitations in such circumstances. The fact that we so often do not rather throws doubt on the alveolar origin of crepitations. It seems more probable that both the redux crepitus and the crepitant râle are produced in the small bronchi.

The dry, pungent skin of pneumonia is proverbial, yet some pneumonic patients sweat freely throughout.

The course of the disease, as a rule, is a definite one, ending generally, in the absence of complications, by the ninth or tenth day, more often on the seventh day. Abortive attacks, in which recovery takes place within two or three days, are not uncommon in children. But the same may occur in adults also, as shown by the following case.

CASE 6. *Abortive pneumonia; crisis on the second day.*—A medical man, aged 56 years, while writing a prescription for a patient was suddenly seized with a rigor and went to bed with a temperature of 103° F. The next day he expectorated scanty rusty sputum and ill-defined signs were discovered at the left base—viz., deficient entry of air—without any definite dulness. On the following day the temperature fell to normal and about the same time a most extensive eruption of herpes appeared, completely encircling the mouth and involving the tongue and soft palate. The crisis took place within 48 hours of the rigor, and the patient made a rapid recovery.

Complications.—Complications are mostly the expression of a secondary infection with streptococci and other microbes. In other cases pneumonia attacks people already suffering from other complaints and must be regarded as itself a secondary infection. True mixed infections where the pneumococcus and some other microbe simultaneously invade the body are very rare. I will refer to this point again. The history not uncommonly shows that bronchitis was present before pneumonia developed and it may be difficult to fix the exact date of the latter infection. In cases complicated with bronchitis a prolonged course and defervescence by lysis are to be expected, though exceptions are to be met with.

Laryngitis is a rare complication that I have only once recognised clinically.

CASE 7.—A young Jewess, aged 21 years, was admitted into the hospital on the ninth day of an illness which began with pain in the left side, followed by hoarseness and spasmodic cough. There were signs of consolidation of the left lower lobe and general bronchitis. The voice was hoarse and the laryngoscope showed intense general congestion of the larynx. The sputum was green and frothy. The history of cough, hoarseness, and fever at first suggested tuberculous laryngitis, but a well-marked crisis took place on the fifteenth day, the temperature falling from 103·2° to 98° F. and the patient made a good recovery.

I may remind you that in Case 2 already described membranous laryngitis was discovered at the necropsy, though no laryngeal symptoms were present during life.

Nephritis.—Albuminuria is a common feature of severe cases but a definite nephritis is exceptional. The following is a good example.

CASE 8.—A boy, aged 4 years, had an attack of pneumonia, ending by lysis on the eleventh day. On the fifteenth day the temperature rose to 102° F. and moderate pyrexia persisted for another fortnight. On the nineteenth day double otitis media with offensive purulent discharge developed. On the twenty-third day he was drowsy and vomited; no optic neuritis; no dropsy; otorrhœa very slight. Urine contained blood and albumin for the first time and epithelial casts were present a few days later. In about a fortnight the urine had quite cleared up and the patient was discharged well, seven weeks after the onset of pneumonia.

Anasarca of renal type without albuminuria.—

CASE 9.—The patient, a Hebrew boy, aged 4½ years, was admitted on Oct. 2nd, 1906. He was taken ill three days previously with shivering. He was said to have had pneumonia twice before. On admission there were signs of pneumonia of the left lower lobe and pleurisy at the right base. The temperature remained high till the thirteenth day of his illness, when it fell by lysis, but after four days it rose to 103° F. and oscillated afterwards between 101° and 98·8° until his discharge. On the twenty-second day his face and legs became puffy and œdematous, his aspect suggesting renal dropsy. But the urine, though scanty, contained no albumin; specific gravity, 1028; reaction alkaline; colour amber. The dropsy disappeared in three or four days. The chest was explored twice, on the twelfth and twenty-third days of the illness, but no pus could be obtained. The parents refused to allow further exploration under an anæsthetic and removed the child. He was subsequently admitted into another hospital, where the empyema was opened, and recovery followed

This was a puzzling case. Œdema of the chest-wall is seen occasionally in cases of empyema and still more uncommonly in serous effusions into the pleura and pericardium; but in this case the dropsy was general, and the appearance of the boy resembled that of renal disease. Probably the dropsy was connected with the empyema.

Delirium.—Delirium of the lesser sort is a very common symptom. Even in mild cases there is generally slight nocturnal delirium at some period of the disease. Delirium tremens in association with pneumonia is so well known that it requires no notice here. Maniacal delirium in non-alcoholic subjects is uncommon. I can only recall three cases, all of which occurred at, or after, the crisis. Where mania arises it is, I believe, usually after the crisis. But Osler says that maniacal symptoms may appear at the very outset. Delirium during the febrile stage is attributable to the toxæmia affecting the nervous system. Post-critical mania has been explained on the hypothesis of exhaustion of the higher cerebral centres. Most authors hold that delirium is more prone to develop in cases of "apex" pneumonia. This has not been my experience. In my three cases of maniacal delirium the lower lobe alone was affected.

CASE 10. *Maniacal delirium at, and after, the crisis.*—Patient, a temperate man, aged 37 years; pneumonia of left lower lobe; symptoms mild, sleeping most of the day till the night of the sixth day when a crisis developed with profuse sweating, the temperature falling from 103·8° F. at 8 P.M. to 98·6° at 8 A.M. next morning. On the night of the sixth day when the temperature was just beginning to fall violent delirium set in and persisted for 36 hours after the development of the crisis. He became very noisy, hearing voices of all sorts, his mother's among them, and impelled by his mother's voice he attempted to get out of bed. He became very violent as these attempts were frustrated, requiring three nurses to hold him in bed. This condition lasted with intermissions for 48 hours altogether. He then got some sleep for the first time. After this active delirium ceased, though his mental balance was somewhat disturbed for a few days longer. Recovery ensued.

In another case, that of a woman, aged 31 years, a mild case of pneumonia of the right lower lobe and pleurisy at the left base, terminating by lysis on the ninth day, maniacal delirium with delusions developed after the crisis had been established. From this she recovered in a few days. This patient had pneumonia 10 years previously.

CASE 11. *Parotitis; acute delirious mania.*—Patient, a married woman, aged 32 years, seen Jan. 12th, 1900; husband recently had influenza followed by pneumonia, and died one week ago. Patient was seized with a rigor on Dec. 31st. Signs of pneumonia, right lower lobe, developed; gradual improvement followed in about a week, but the temperature remained about 101° F. One week ago a parotid abscess formed on the left side and was opened, thick pus escaping. Bacteriological examination showed presence of staphylococcus aureus; no pneumococci or influenza bacilli. When I saw the patient the abscess was still discharging. Physical signs suggested empyema, but punctures gave a negative result. The patient was in a state of mild delirium, with a very irregular pulse and frequent vomiting. The latter symptoms I attributed to digitalis, which she had been taking. Digitalis was discontinued and vomiting and arrhythmia ceased. The patient improved and the parotid abscess healed, but during convalescence acute delirious mania supervened. The temperature did not become normal till Feb. 12th. On Feb. 17th recovery was complete.

Diarrhœa. — Diarrhœa is a rather uncommon critical phenomenon, but it may appear quite early in the disease or more rarely after the crisis. As an instance of the first is the following case:—

CASE 12.—A lady, about 45 years of age, much reduced in strength by long attendance on an invalid old mother, went to the latter's funeral on a cold day at Easter time. The same night she was taken ill with pain in the left side and next day signs of pleurisy were discovered. On the second day rapid consolidation of the left lung in the form of massive pneumonia developed, and on the same day profuse uncontrollable diarrhœa set in and produced extreme exhaustion, the patient dying on the third day.

CASE 13. *Post-critical diarrhœa.*—Patient, a boy aged 5 years; pneumonia terminating by crisis on the seventh day. Three days later diarrhœa with blood and mucus lasting eight days; no rise of temperature or symptoms of severe illness; good recovery.

Death from pulmonary embolism during convalescence.—

CASE 14.—A man, aged 56 years, who had previously enjoyed good health, developed symptoms of renal calculus. The operation for removal of the stone was quite successful. But 14 days later he was attacked by pneumonia, first the right, then the left lower lobe being affected. Defervescence took place by lysis on the twelfth day. Subsequently a small effusion was detected on the left side, and on the twenty-first day 2 ounces of serous fluid were removed by paracentesis. Four days later the patient seemed to be much better. But in the evening, while taking dinner in bed, he suddenly complained of feeling sick, vomited, broke out into a cold sweat, became very pale and collapsed, urgent dyspnœa appeared, and he died in a few minutes. An injection of strychnine was given immediately without any effect.

No necropsy could be obtained, but there can be little doubt that pulmonary embolism resulted from detachment of a thrombus from the right side of the heart.

Typhoid fever beginning with lobar pneumonia.—

CASE 15.—The patient, a nurse, aged 36 years, was admitted on Nov. 16th, 1896. She began to feel ill and shiver on Nov. 12th, but did not take to her bed till Nov. 15th. On admission: Face flushed; pulse 100, respiration 32, and temperature 106° F.; no herpes; no cough or sputum; signs of consolidation of the right lower lobe; spleen slightly enlarged. Diagnosis: pneumonia. [On Nov. 17th the late Dr. J. W. Washbourn saw her with me and injected 17 cubic centimetres antipneumococcal serum. Six more injections were given subsequently at intervals, the last on Nov. 24th, the twelfth day of disease. The temperature remained high, rarely falling below 104°, till the eleventh day, when it fell to 101 4°, but gradually rose again. The patient had now become restless and slightly delirious; the hands were tremulous; slight cough and expectoration; coarse crepitation at the right base; abdomen full. On Nov. 28th (the sixteenth day of the disease) the temperature had fallen to 101°, and remained at this level for three days. General condition unchanged; delirium and tremor still present; eruption of miliaria on skin of abdomen and trunk; no true rose spots; spleen still enlarged; bowels loose the last week; stools pale yellow; dulness at right base much less; coarse crepitation still audible. The right lung gradually cleared up, but there was little general improvement till the end of December, the temperature oscillating between 102° and 99°. On Jan. 1st, 1897, the fiftieth day of the disease, the temperature became normal, the spleen could no longer be felt, and convalescence thereafter was uninterrupted. The patient left the hospital early in February.

It is difficult to decide whether in such circumstances pneumonia was due to the pneumococcus or to the B. typhosus, though the marked recession of local signs during the third week seems to me more significant of a pneumococcal origin. In that case we had to do with a true mixed infection. In the Clinical Society's Transactions, Vol. XXXVIII., Dr. Sidney Phillips and Dr. B. H. Spilsbury record a case of lobar pneumonia in typhoid fever due to the B. typhosus. Dr. Phillips states that pneumonia in typhoid fever is by no means uncommon and may occur at the very commencement of the disease or at any period of its course. I have more than once seen lobar pneumonia occurring during the course of typhoid fever, but the above is the only instance in which I have met with it at the very start.

Rheumatic fever and pneumonia combined; simultaneous infection.—

CASE 16.—A man, aged 29 years, was admitted on June 7th, 1909, complaining of pain in the left hand, both hips, back, shoulders, and elbows. The pain began in the left shoulder on June 1st and the same night he became hot and feverish and had cold shivers and a sore-throat. He was laid up for seven months from Christmas, 1907, with "rheumatism," but he did not have to remain in bed. He never had chorea. On admission the patient was pale, sweating freely, and was slightly deaf. Pulse, 100; respiration, 34; temperature, 105·4° F.; no fluid detected in painful joints; shoulders acutely painful on movement. Heart's apex beat one inch outside nipple line; impulse weak, sounds clear; lungs clear. June 8th: Pain on right side of chest; pleuritic rub heard. Temperature fell from 105·4° to 97·5° in the morning but rose again to 101·8°. June 9th: Signs of consolidation of the right lower lobe. Temperature 104·3°. Pains in joints relieved by salicylate of soda, but temperature unaffected, oscillating between 103·8° and 99·0° for next 10 days. Signs of fluid effusion gradually developed at the right base, and the chest was needled twice on June 21st and 25th with a negative result. The patient rapidly became very pale and ill. The left shoulder remained exquisitely painful and tender and on June 17th was distinctly swollen. July 5th: Chest needled in three places unsuccessfully. Urine 1010, smoky, containing a trace of albumin and blood. Pain in left shoulder still very great. A faint systolic murmur was heard in the pulmonary area. July 10th: Patient was anæsthetised and needled in seven places. Pus was found just

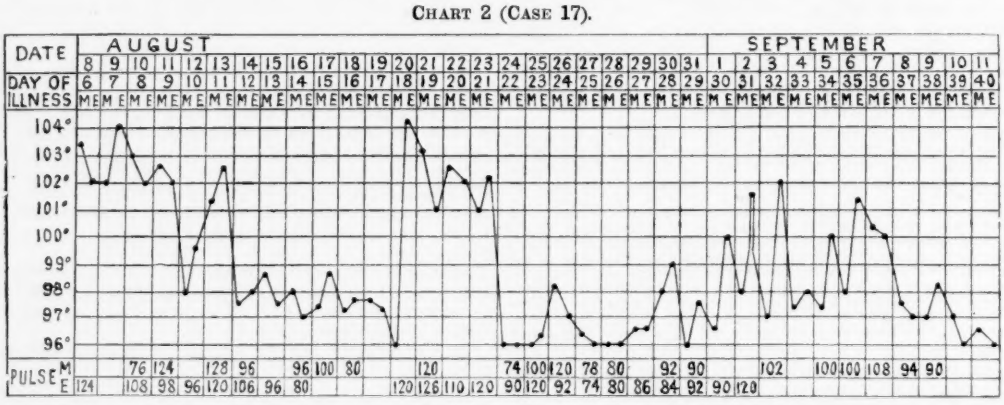
above the limits of absolute dulness; 18 ounces were removed and a rib was resected. The cardiac murmur disappeared, the urine cleared up, and after a slow convalescence the patient was discharged on Oct. 2nd with a small discharging sinus. A few weeks later, on his return from the convalescent home, he was looking rosy and well; empyema opening closed, heart normal, complains of nothing but slight stiffness of left shoulder.

This was at first taken for an uncomplicated case of rheumatic fever, though the temperature (105°) and the rigor at the onset were unusual for this affection. From the history it is clear that if this was a combination of rheumatic fever and pneumonia, as seemed probable, it was a true mixed infection, the two diseases appearing almost, if not quite, simultaneously. How far the persistent arthritis of the left shoulder was rendered septic or infected with the pneumococcus by the empyema is uncertain. It certainly was unlike the ordinary rheumatic joint.

Relapsing pneumonia.—By a relapse we understand a renewal of fever and signs of consolidation some days after a complete remission of symptoms and improvement or disappearance of pulmonary signs has taken place. In this strictly limited sense a relapse in pneumonia is a great rarity. Osler says: "There are cases in which from the ninth to the eleventh day the fever subsides, and after the temperature has been normal for a day or two a rise occurs and fever may persist for another ten days or even two weeks. Though this might be termed a relapse it is more correct to regard it as an instance of an anomalous course of delayed resolution." To quote Coupland and Sturges: "By relapsing pneumonia we mean the complete arrest or suspension of pyrexia for some days with resolution more or less complete, followed by reappearance of the early symptoms and repetition of the inflammatory process." It is surely as legitimate to speak of a relapse in such circumstances as it is in the case of typhoid fever. The conditions which determine a relapse are unknown, though a relapse must represent a reinfection probably from some focus in the lung. I have only met with two cases of a true relapse which I now give shortly.

CASE 17.—*Pneumonia with two relapses.*—A boy, aged 6 years, was quite well till August 2nd, when he was taken ill with vomiting. He subsequently became delirious and was brought to the London Hospital on August 8th. On admission his pulse was 124, respiration 38, and temperature 103·5° F., and there were physical signs of pneumonia of the left upper lobe. A crisis occurred on August 14th, the twelfth day of the disease, the temperature falling from 102·7° to 97·7° and the pulse from 120 to 96. The physical signs had cleared up on August 19th. The temperature remained subnormal for seven days, but on August 20th it rose to 104·2°, and remained above 101° for four days, after which time it fell to 96°. During this relapse signs of consolidation of the left upper lobe reappeared and the upper part of the lower lobe became involved also. The spleen was now found to be enlarged. From August 24th to Sept. 1st, the thirtieth day, the temperature was subnormal, but on the latter date it rose at night to 100°, and oscillated between 102° and 97° for another seven days. During this second relapse the boy did not appear to be ill, though the signs of pneumonia persisted. On Sept. 8th the temperature again fell to normal and the patient gradually recovered and was discharged on Oct. 1st (see Chart 2).

CHART 2 (CASE 17).



CASE 18. *Pneumonia with a relapse.*—A medical man, aged 34 years, had an attack of influenza for which he did not lie up till the second day. On the next day the temperature fell and he felt better. Two days later on getting out of bed to wash he had a rigor, his temperature rose to 105° F., and he complained of sharp pain in the right side and cough. On the fourth day from the appearance of the rigor there were signs of pneumonia of the right lower lobe; sputum scanty and brick-coloured; pulse 100, respiration 30, temperature 103°. On the eighth day consolidation of the base of the left lung. Defervescence took place by lysis, the temperature reaching the normal and the pulse falling from 100 to 80 on the ninth day. The sputum no longer contained blood. Both lungs began to clear up, tubular breath sounds disappeared, and coarse crepitus was heard at both bases. After four days of normal temperature and marked general improvement there was a sudden rise of temperature to 103° at night, and the sputum was stained with florid blood for three days. Dulness and tubular breathing were now well-marked at the left base (the side last affected), the right base showing only a trifling degree of dulness. The temperature fell by lysis and in six days was again normal. Gradual but complete recovery followed.

In both the cases narrated it will be noticed that the relapses were of a mild character, as is customary.

Delayed resolution.—The rapidity with which the products of inflammation are absorbed, especially in children, is one of the many remarkable features of pneumonia. Instances of resolution delayed beyond a fortnight are few, if we are careful to exclude the existence of pleural effusion. In most cases where the side remains dull exploratory puncture reveals the presence of pus or occasionally serous fluid. Resolution may be delayed for several weeks or even months, and the lung may still have a condition of simple grey hepatisation. Most cases of tardy resolution ultimately recover completely. In a very few instances fibrosis of the lung is developed. At times some flattening of the affected side appears without any other signs of fibrosis. In some of these probably a limited fibrosis has arisen. But in other cases flattening of the chest has been only a temporary phenomenon, and was evidently due to collapse of the lung. A. Fränkel believes that delayed resolution is mostly due to induration, but it seems to me that there is little evidence of this. It is well not to keep patients convalescent from pneumonia in bed very long after the temperature has permanently fallen if the general condition is satisfactory, whether dulness persists or not, assuming, of course, that pleural effusion has been excluded by exploratory puncture. I have more than once seen apyrexial cases of delayed resolution begin to clear up as soon as they were allowed to leave their beds and move about a little.

Fibrosis.—The relation of pneumonia to fibrosis has provoked much controversy. Some authors assert that a true lobar pneumonia never results in induration. Others consider that, although it is very uncommon, such an event does occasionally occur. The following is a very good instance of indurative pneumonia, organisation into connective tissue following hard on a severe lobar pneumonia.

CASE 19.—A man, aged 43 years, a hawker, was admitted into the London Hospital on March 10th, 1891, under Dr. Francis Warner, who kindly allows me to make use of the case, the notes being by Dr. Eliot Curwen. On March 1st he was suddenly taken ill with pain in the back on the right side, vomiting, and rigors. These became worse on the 4th, and the vomiting lasted nearly all day. The pain in the back became so bad, and "stiffness" in the thighs so marked, that he could not walk. Till he came to the hospital he vomited each day. The heavy aching pain in his back became constant and rigors were frequent. Cough had been severe since March 9th and expectoration more profuse, and he has complained of a sharp pain in the right side on breathing or coughing. Previous history: Bronchitis the last four winters.

On admission on the tenth day of disease the temperature was 104°; there was slight dulness at the base of both lungs, with weak breath sounds and numerous crepitations. The sputum was copious, watery, and frothy. Next day herpes labialis appeared and the sputum became viscid and slightly rusty. Pulse 128, respiration 56, and temperature 103·6° F. Right base more definitely dull behind and in the axilla; breath sounds absent behind; tubular in lower axilla. On the twelfth day delirium set in, noisy but not active, and persisted till his death. Dulness gradually spread up from the base on the right side and involved the whole scapular region, tubular breathing and crepitation being heard over the same area, and crepitation at the left base also. The temperature varied from 103·8° to 101° until the seventeenth day, when it fell to normal, but rose again gradually to 101°, falling to normal on the twentieth day and not rising again. Profuse diarrhœa

set in the last three or four days, and with increasing delirium and weakness he died on the twenty-first day of the disease.

At the necropsy I found the following conditions on the right side: General fibrinous adhesions firm and fibrous along the posterior border; posterior part of all three lobes solid, of dull red colour, on section wet and glazed; no granulation of surface; interlobular markings distinct; no coarse fibrous bands; no dilated bronchi; anterior margins emphysematous; left lung emphysematous, congested, and œdematous at the base; heart muscle soft, fibres granular; liver large, soft, and pale; kidneys, cortex cloudy; other organs normal.

Microscopical examination of hepatised right lung: The alveoli contained granular and fibrinous plugs which were more or less completely enclosed in a delicate sheath of young connective tissue consisting of a hyaline substance interspersed with scanty fusiform and round nuclei. In a few places the fibrinous matter had been entirely replaced by a knot of young fibrocellular connective tissue. Here and there an alveolus contained nothing but a few large desquamated epithelial cells. The capillaries of the alveolar walls were gorged with blood, but there was no interstitial thickening.

In this case organisation of the alveolar exudation into connective tissue had already begun at the end of three weeks. A similar change in the lung has been noted in a fair number of recorded cases.

Cases of fibrosis of the lung following pneumonia may be roughly divided into two groups. In the first the disease is febrile and progressive, terminating fatally as a rule in a few months. In most cases ulcerative cavities in the lung develop, and the sputum may become foul. In the case just described there was no breaking down, possibly owing to the fact that the patient died so soon. In the second group fibrosis takes place very insidiously, arising out of what appears to be delayed resolution, without fever or constitutional disturbance, and the patient recovers with a fibroid lung.

In a paper on Subacute Indurative Pneumonia, published in THE LANCET in 1890 I described two cases of pulmonary fibrosis supervening directly on subacute forms of pneumonia. The anatomical changes in the first of these closely resembled those above mentioned—i.e., organising pneumonia. The history of this case was that the disease began with sudden chills, weakness, and cough, but the patient was only confined to bed for two days, though ailing from the first, and complaining of cough, expectoration, dyspnœa, and night sweats. Death took place about four months after the onset. The history suggested that it was not an acute sthenic pneumonia, the constitutional disturbance being relatively slight and transitory.

The case seemed to lend support to the view put forward by Wagner, Heitler, Talma, Hanau, and Pal, that the pneumonia which leads to induration is a special form distinct from the acute classical variety. These authors ranged themselves on the side of Rokitansky, Wilks, and Buhl, who denied that acute lobar pneumonia ever passes into a chronic stage, in opposition to the statements of Stokes, Charcot, Marchand, and Ziegler. But cases like No. 19 described above, as well as others published by A. Fränkel and other authors, have convinced me that this statement is too exclusive, and that it must be admitted that in exceptional cases acute lobar pneumonia may lead to induration. Why in some cases resolution delayed for months may be followed by complete recovery, while in another like the case just referred to induration should have begun at the end of three weeks must at present remain unexplained.

Dr. A. G. Auld, in the *British Medical Journal* in 1905, reported a case of "fibroid pneumonia" occurring in a child. The disease began acutely with vomiting and fever, soon followed by signs of pneumonia of the whole right lung, with remittent fever lasting for ten weeks. Improvement then began and the temperature became normal. So far there was no cough or expectoration. The lung remained very dull, but repeated punctures failed to yield any fluid. Subsequently slight fever returned, and when she was next seen, seven months after the onset, cough and expectoration had developed and tubercle bacilli were found in the sputum. Gradual improvement followed and eight weeks later her temperature was normal and her general health was good. Dr. Auld regarded the case as one of acute pneumonia going on to fibrosis with subsequent tuberculous infection.

A somewhat similar case was admitted into the London Hospital under my care about the same time.

CASE 20.—A labourer, aged 25 years, was admitted on June 28th, 1904. The patient, who had never been ill previously, first felt ill on June 17th, when he had much shivering, a stabbing pain in the left side, and soon afterwards cough, expectoration, and shortness of breath. On admission: pulse, 100; respirations, 20; temperature, 100° F.; signs of pneumonia (dulness, tubular breathing, and subcrepitant râles) of the left lower lobe. No change in the general or local condition followed. The temperature for the first three weeks ranged from 103° to 100° and was remittent in character. For the next three weeks it ranged from 101° to 99° and for the next fortnight from 100° to 98°. As the left side remained very dull, it was punctured, and 12 ounces of clear fluid were withdrawn on July 13th. A further puncture was made on July 22nd with a negative result. The sputum was repeatedly examined for tubercle bacilli, but none were found. The patient improved greatly and was sent to a convalescent home on August 24th, when his temperature had become normal. The day the patient was discharged his sputum was found to contain tubercle bacilli for the first time. He was subsequently admitted into the Brompton Hospital, but discharged himself in a few days. In September, 1906, two years after the acute attack, he was seen by Dr. A. I. Simey, the medical registrar, who found signs of "typical phthisis" with tubercle bacilli in the sputum.

The case was originally regarded as one of pneumonia with delayed resolution, but when tubercle bacilli were discovered the diagnosis had to be reconsidered. Was it a case of lobar pneumonic tuberculosis from the first, or was it a case of lobar pneumonia associated with tuberculosis? The latter seems far more likely, for the lobar pneumonia form of tuberculosis is almost always progressive and a fatal issue usually reached in a few months at the latest. Whether tuberculosis was grafted on the pneumonia or whether tuberculosis was present though latent at the time that pneumonia developed admits of discussion, though I myself am in favour of the second view.

An Address

ON

THE MECHANISM OF INFECTION IN TICK FEVER AND ON THE HEREDITARY TRANSMISSION OF SPIROCHÆTA DUTTONI IN THE TICK.[1]

Delivered before the Society of Tropical Medicine and Hygiene on Dec. 17th, 1909,

BY SIR WILLIAM B. LEISHMAN, M.B., C.M.GLASG.,

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MR. PRESIDENT AND GENTLEMEN,—For some years past I have been greatly interested in spirochætæ, and have, among others, worked with pallida, vincenti, recurrentis and duttoni, both from the morphological and the biological sides, one of the principal objects of my investigations being the vexed question of their protozoal as against their bacterial nature. You are all aware of the opposing views which have been held on this point, and I must at once confess myself an advocate of the protozoal theory. I need hardly add that the solution of this point is of more than academic importance, and is intimately concerned with problems of immunity, and may possibly lead to successful prevention and treatment in the future.

The main facts in connexion with infection in tick fever are well established, and I will only say that I have confirmed, if further confirmation were needed, the fact of transmission of the disease to animals by the bite of ticks sent to me from Africa. The hereditary transmission of the disease to the second generation of ticks I have also confirmed, as nymphs which I have reared in the laboratory from the egg are infective for mice and monkeys. Moeller's observation of the further transmission of the virus to the third generation I am not yet in a position to confirm as my second generation has not attained sexual maturity. Hereditary transmission through the tick, then, being established beyond doubt, my first observations were directed towards the discovery of spirochætæ in the bodies of infected ticks, and long and carefully did I search those which I first received from Africa through the kindness of my friend Captain Hallam Hardy, R.A.M.C., whose sad death from sleeping sickness you may have heard of. My search was in vain, no trace of a spirochæta was found. As these ticks had failed to infect a monkey by their bites, I concluded that they themselves were not infected and asked for more, stipulating that on this occasion the ticks should, if possible, be collected from huts in which cases of tick fever had occurred. I need

[1] The expenses of this investigation were in part met by a grant from the Royal Society.

not trouble you with details of further failures, but I was in the end successful in infecting a monkey with tick fever by the bites of ornithodorus, collected in Nyassaland in infected huts. At the height of the fever, when the blood was rich in Spirochæta duttoni, I allowed a large number of my ticks to feed on the monkey, and was then in possession of material with which to carry out the researches I had in contemplation.

I mentioned just now that my first batches of ticks showed no spirochætæ in any portion of their anatomy; to my surprise I was equally unsuccessful in my search in the case of the batch which infected the monkey, and, I may add, in the case of other batches since received from different parts in Africa, which also proved infective. It is, of course, impossible to exclude the chance that some of the ticks which bit the monkeys in question did harbour spirochætæ. This fallacy is one which is always present in such work as that under consideration. For example, whatever conclusion one arrives at as to the condition of a given batch or brood of ticks must be founded on the examination of a sample of such batch. However large the sample, and there are obvious limits to this where it is desired to follow up the course of subsequent events in such a batch, any conclusion is open to the objection that a different condition existed in a member of the group which was allowed to survive. Conservative surgery in the case of a tick is unfortunately impossible. The number of my examinations, however, totalling many hundreds, of ticks in all stages of development enables me to say with a fair degree of certainty that no spirochætæ were present in the tissues or body fluids.

Turning now to the hereditary transmission of infectivity to the second generation of ticks, which, as I have mentioned, I have personally confirmed, this confirmation was made with the progeny of those ticks which, if infected, brought their infectivity with them from Africa and had only fed on normal blood since their arrival in England. Here, again, no spirochætæ could be found, either in the very youngest eggs which it was possible to dissect out of the ovary, in eggs at various stages of incubation, or in the larvæ and nymphs hatched from such eggs. I may at this point remind you that the persistence of spirochætæ in the tick, their presence in the ovaries, and their presence in the eggs and in young hatched from these eggs has been observed by Koch and, in part, confirmed by Carter, the former working in German East Africa and the latter at the Liverpool School of Tropical Medicine. The negative results which I obtained were very puzzling in view of these positive ones, but I think now that they are reconcileable in the light of the subsequent experiments and observations which I shall mention.

I next turned my attention to a study of the fate of spirochætæ ingested by ticks, dissecting a tick of each batch every day for a fortnight; in every instance the following were examined: the cœlomic fluid, the gut contents, the walls of the intestinal sac and portions of its diverticula, the genital organs, the salivary glands, the coxal glands, Gené's organ, the Malpighian tubes and Malpighian secretion. The result may be stated briefly: no recognisable spirochætæ could be detected later than the tenth day. The changes which the spirochætæ underwent in the intestinal sac were found to be very interesting, but would take too long to describe in detail. Dutton and Todd have described many of these changes, as well as others which were not encountered in my specimens. The principal features were the extrusion of lateral, more rarely terminal, swellings, which contained one or more particles of chromatin, and the breaking up of the chromatin core of the spirochæta into numerous fragments of coccoid or bacillary shape. In a few instances these small chromatin particles have been observed free in great numbers in the gut contents. Long before this I had observed in the Malpighian tubes of almost every tick dissected aggregations of curious clumps of chromatin granules, often in such numbers as to mask the cellular structure of the tube. These granular clumps I subsequently encountered in all stages of the tick's life, from the microscopical ovum up to the adult. Dutton and Todd have also noted granules in the Malpighian tubes of ticks recently fed on spirochæta blood which they considered to be derived from the spirochætæ, but I am in some doubt as to their identity with those in question, since Dr. Todd, to whom I had the pleasure of showing some of my specimens, informed me that he had not observed this condition in the tubes of young nymphs. I may say at once that I consider these chromatin granules to be derived from spirochætæ, and, further, to be connected with them biogenetically. The situations in which they are encountered are the following. First, the Malpighian tubes, in which their distribution may be very irregular, some portions being distended by them, while none may be found in a long tract of the same tube. This irregular distribution may possibly be explained by the granules having escaped from the thin-walled intestinal sac into the tubes only in those situations in which the two structures happen to be in close contact. Secondly, in the ovary, where they are often encountered in great numbers and where, at times, a few clumps may be detected lying within the immature ova. Thirdly, they are sometimes found in small numbers in the walls of the intestinal sac. Finally, as a very rare occurrence, similar clumps of granules have been seen in the cells of the salivary glands.

From the time I first observed these granules, more than three years ago, I was suspicious of their possible protozoal nature, as they failed in many points to fit what appeared to me to be the only alternative explanations as to their nature—viz., first, artefacts resulting from the staining method employed; secondly, granulations connected with the cellular cytoplasm; and thirdly, bacteria. They appear to consist almost entirely of chromatin, although at times a faint blue-staining fragment has been seen attached to the granules or rods of chromatin. The tendency to adhere loosely in the form of little clumps or aggregations of a number of granules is very marked, both in those stained in the unruptured tissues and in such as have been liberated by the laceration or division of such tissues.

During the prolonged search for spirochætæ in the eggs, larvæ, and nymphs of infected ticks the same clumps of chromatin granules were almost invariably detected. From the youngest eggs recognisable under a high power in the teased-out ovarian tissue, up to the young nymph hatched out from the egg of an infected mother, granules have been observed at all stages. Only a small proportion, however, of the microscopic eggs showed granule clumps, and, as a rule, only one or two clumps were observed, with one exception, where a large number of clumps were seen, filling up the egg case. In larger eggs, which it was possible to dissect out from the ovary with fine needles under the microscope, the clumps were more abundant, while in mature eggs laid under natural conditions they were rarely absent and often numerous. The subsequent fate of these granules was studied from day to day after the eggs had been laid, and it was seen that, very soon after the first recognisable embryonal cells made their appearance, the granular clumps were found in the protoplasm of some of these cells. At a still later stage small masses of cells were seen, obviously in rapid growth, in which the clumps were once more found. From this point all the granule clumps seen were intracellular, never free unless such cells had been ruptured. Subsequent close investigation showed that such cell aggregations were the primitive commencements of the Malpighian tubes of the young tick, every intermediate stage being seen up to such fully formed tubes as could be recognised without doubt, many of which, even at this early stage, showed the characteristic crystals of the Malpighian secretion in their lumen. From this point up to the formation of the larva and the final emergence of the octopod nymph from the egg the granules were only to be encountered in the Malpighian tubules and only free when such tubules had been torn in the act of making the slide preparations.

Assuming their spirochæte origin, it is obvious that these granules are not mere "resting forms," as they multiply in the egg and in the young tick, the few clumps seen in the most minute egg giving rise to the thousands found at a later stage in the Malpighian tubes. In all the subsequent stages of the growth of the nymph, at any rate up to the sixth moult, which is as far as I have followed the generation bred in the laboratory, they are constantly present in the tubes, though their numbers show great variations and the irregularity of their distribution in such tubes is sometimes very marked. Contrasting nymphs hatched from females which had been known to feed on spirochæte blood with others hatched from females fed in the laboratory only on normal blood there was no doubt that the granules were much more abundant in the case of the former; at the same time, the latter nymphs almost

always showed the same granules, though in smaller numbers, while in a few instances I have been unable to detect any in the pieces of tube which were examined.

I may now proceed to describe some experiments aiming at the determination of the nature of these granules. Cultivation under very varying conditions gave nothing but negative results. Inoculations of mice, however, proved more successful. For this purpose various organs of ticks were carefully dissected out, washed in many changes of sterile salt solution, and, finally, broken up as far as possible by grinding in salt solution, the resulting emulsion being injected hypodermically into white mice. The presence or absence of spirochætæ or granule clumps was noted by staining and prolonged microscopic search. In a certain number of cases positive results were obtained with emulsions of Malpighian tubules, of ovarian tissue, and of the white secretion of the Malpighian tubes, never, so far, with emulsions made from the salivary glands. The mice in these cases, after an incubation period of seven to ten days, corresponding with the usual incubation period after natural infection by tick bite, developed tick fever and showed abundant spirochætæ in their blood. In all cases in which infection occurred the granules were proved to have been plentiful in the fluid or tissue inoculated, while no spirochætæ could be found. As already mentioned, the failure to find spirochætæ does not definitely prove their absence, but my search has been so close that I feel fairly confident that they were absent in the cases mentioned. Positive results from the inoculation of emulsions containing such granules were not, however, obtained in all cases, and the material which produced spirochæte infection was, in the majority of instances, derived from ticks which had been kept at a temperature of from 34° to 37°C. for a day or two before dissection. (Except where otherwise noted all the ticks were kept at a temperature of 22° to 24°C.) Subsequent work leads me to think that the higher temperature has the effect of inducing changes in the granules which are an essential preliminary to their ultimate development into spirochæte form. This point will be mentioned again in discussing the effects of heat upon ticks recently infected with spirochæte blood.

A few words may now be said upon the method of natural infection by tick bite. It has, I think, been generally assumed, if not actually asserted, that this occurs by means of the injection of spirochætæ through the biting parts of the tick, such spirochætæ having previously harboured in the salivary glands. My persistent failure to find a single spirochæta in the salivary glands of a tick, even in such as I had infected by allowing them to feed on heavily infected blood, appeared to me to throw some doubt upon the correctness of this view. At the same time, the inoculation of granules through the medium of the salivary secretion also appeared improbable in view of the extreme rarity with which I have encountered them in the salivary glands. An alternative method appeared to me as possible and was submitted to experimental test in the following way. Nine ticks which I had infected some months before were allowed to bite a monkey. After they had fixed and commenced to feed they were gently removed and placed on another monkey, on whom they were allowed to gorge. The fact of their all having bitten the first monkey was verified by observing the punctures and small ecchymoses which surrounded the bites. As is well known, when these ticks commence to swell they pass a large quantity of clear fluid from the coxal glands (whose anti-coagulating properties I have been able to determine), and some, in addition, pass the white secretion of their Malpighian tubes. These fluids, therefore, bathe the skin of the monkey and almost certainly may penetrate into the subcutaneous tissues through the punctures left when the tick has loosened its hold on its host. The two monkeys, then, although bitten by the same ticks, differed in the following respect: on the first none of this fluid had been passed, while on the other the wounds were bathed in it. Some of the fluid passed on the second monkey was also collected and inoculated hypodermically into a mouse. Careful search of this fluid showed neither spirochætæ nor granules; the latter, however, are so minute that they might readily be missed. The result of this experiment was interesting and suggestive; the first monkey was not infected, while the second monkey and also the mouse developed tick fever, which ran a typical course.

It would appear, therefore, from this experiment, and others of similar nature, that a possible method of infection, perhaps the common one, is through the medium of the secretions voided by the tick in the act of gorging and not, as usually supposed, by the direct inoculation of spirochætæ in the veneno-salivary secretions. This problem of the method of infection, however, appears to me to be still far from clear. Those who are familiar with the recorded experiments on tick transmission will recall that, in almost every instance, a number of ticks have been employed and not a single individual. I, too, have found that one cannot be certain of infecting an animal by the bite of a single tick, even when such tick is known to be one which is heavily infected. It is obvious therefore that other factors must come into play. One of these factors, though in my opinion by no means the only one, is undoubtedly the temperature at which the ticks have been kept prior to their being allowed to feed. In Africa it has been shown that to secure the infection of animals it was necessary to bring the ticks down from the high and comparatively cool country and conduct the experiments in the warmer low ground. Again, most workers before allowing ticks to feed keep them for some hours, or for one or two days, at a temperature approximating blood heat, although the reason for this is usually held to be simply that it renders the ticks more active and more inclined to feed. To my mind this preliminary heating has a different significance—namely, that it has the effect of inducing certain changes in the granules which may be held as heralding their transformation into spirochæta form. It is hardly necessary to add that I do not make such a suggestion as a mere hypothesis, but as the result of many months' labour in the study of infected ticks kept under varying conditions of temperature. It would occupy far too much time to describe these experiments in detail, and I shall confine myself to a brief summary of the results of the more important.

1. In nymphs of various ages and adults, which have been kept for a week or ten days at a temperature of 34° C., spirochætæ have, in some instances, been seen to reappear in various situations, chiefly in the Malpighian tubes and in the walls, not the lumen, of the intestinal sac and diverticula. These spirochætæ, however, did not resemble Spirochæta duttoni as encountered in the blood; they were shorter, more homogeneous, and less regularly curved; they occurred, too, as far as could be observed, not in the fluids, but actually in the cytoplasm of the cells lining the tubules and the intestinal diverticula.

2. The above change is preceded or accompanied by an alteration in the character of the granules so constantly found in the Malpighian tubes; these become more coccoid or spherical in form, and many are enlarged beyond the usual limits of size.

3. Control material in the shape of ticks of the same batches, which had always been fed at the same time and on the same animal, but which had been kept at a temperature of 24° C., showed on dissection no trace of spirochætæ, but only granules of the usual types and in the usual situations.

4. Spirochætæ which have reappeared in ticks under the above conditions of temperature, &c., may persist in such ticks for some months after they have been replaced at the lower temperature and are found in the same situations, though in smaller numbers.

5. Young nymphs newly hatched from infected parents, when kept at a high temperature, show the same changes in characters of the granules as older ticks and adults, but spirochætæ have never been noticed. This would suggest that a feed of blood may be another factor in inducing the change into spirochæte form.

6. A comparative study has been made of newly hatched nymphs whose first meal consisted of spirochæte blood and which were subsequently divided into three lots and kept respectively at 24°, 34°, and 37° C. Several nymphs of each group were examined daily up to three or four weeks after feeding. (*a*) In nymphs kept at the lower temperature of 24° C. the ingested spirochætæ were found to undergo speedy segmentation of the chromatin, and, after a period of 10 or 12 days, were found to have disappeared completely from the stomach; later than this no spirochætæ could be detected in any situation in the nymph's body. An increase in the number of granules in the Malpighian tubes appeared

to coincide with the disappearance of the spirochætæ from the gut, but this point was difficult to verify in view of the constant presence of the granules in almost all ticks and the variable numbers encountered in different individuals. (*b*) Nymphs kept at a temperature of 34° C. showed similar changes in the ingested spirochætæ, but such changes and the disappearance of the spirochætæ from the gut occurred more rapidly than in those kept at 24° C. A few days after the spirochætæ had disappeared they reappeared in the tissues and fluids of the lymph, but in greatly altered form, most being very much shorter than any of the forms usually seen in the blood, while many were little larger than cholera vibrios. The smallest forms of duttoni as seen in the blood are about 16μ to 19μ in length, Dutton and Todd mention one of 13μ, but many of these "young" forms, as I may call them, are no more than 8μ to 9μ. These young spirochætæ persisted as long as the ticks were kept at this temperature, but rapidly disappeared when they were replaced at 24° C. In some situations it was apparently possible to trace the origin of the young spirochætæ out of the granules. (*c*) Nymphs kept at a temperature of 37° C. showed a similar condition as regards the spirochætæ to those kept at 34° C., the young spirochætæ appearing after the ingested ones had disappeared from the gut, but in this case they were not so abundant, doubtless on account of the impaired vitality of the ticks, which, at this temperature, will not moult, and eventually die in about three or four weeks.

7. Attempts made with a view to the detection of spirochætæ in the eggs laid by infected parents. Out of many hundred eggs examined it is only recently that spirochætæ have been encountered, and this in four eggs only. Two of these were eggs laid by a tick which had been heated for five days at 37° C. some months before, but which had subsequently been kept at 24° C. In this case the spirochætæ were scanty and of the usual adult form. The two remaining eggs were dissected out of the ovary of a tick which, after feeding on normal blood, had been placed at 34° C., and kept at this temperature for nearly four weeks before dissection. In this instance the spirochætæ were extraordinarily abundant; they occurred in great tangles, and many of them appeared to be in process of development out of the granules.

With regard now to the influence of previous heating of the ticks in connexion with some of the experiments to which I have alluded. It is, of course, possible in cases in which infection of the animal resulted, whether through the agency of the bite of tick or through the inoculation of portions of tissues or secretions of ticks, that spirochætæ may have been present although they escaped observation. As I have already mentioned, it does not appear practicable in such experiments to exclude this possibility. At the same time, the most arduous and prolonged research of the material inoculated, or of the tissues of these ticks dissected after they had fed, has in many instances resulted only in the demonstration of the granules. In some cases in which infection was successful the ticks employed had been heated for from one to four days at 37° C. As already recorded, prolonged heating at this temperature has, in some instances, resulted in the reappearance of what I have called young spirochætæ. The question arises, therefore, whether infection in these cases may have been due to the inoculation of such spirochætæ, and not, as I have suggested, to the inoculation of the granules. I do not feel able at the present moment to speak with confidence on this point, and will only say that the general analysis of my results leaves me with the impression that inoculation of the granules alone may cause infection, but that it appears probable that previous heating of the tick is an essential preliminary, inasmuch as it induces changes in the granules which are the initial stage of their conversion once more into spirochætæ. I may add, in connexion with this question, that a considerable number of mice inoculated with material containing granules only, although not becoming infected, died in from 24 to 48 hours, although but a small dose was inoculated, and this subcutaneously. A bacterial septicæmia was excluded in these cases by the post-mortem examination.

Two further observations made in the course of these investigations appear worthy of record before I proceed to my concluding remarks. First, the development of immunity in the case of the monkey. One of the monkeys infected by tick bite recovered, an exceptional experience, after the third relapse. Infected ticks were allowed to feed on this monkey four weeks after recovery and infection again resulted; but in this instance there was no relapse. Five months later the bites of another batch of infected ticks resulted in the appearance of very rare spirochætæ on the eighth and twelfth days only, while a fourth feeding, one month later, demonstrated at last an apparently substantial immunity since no spirochætæ were subsequently found. Secondly, on two occasions I have observed clumps of the granules in spermatozoa found in the oviduct of an infected female. It appeared to me in these cases that there was no doubt as to the actual inclusion of the granules in the spermatozoon, as opposed to possible superposition. If this was the case, and if my views as to the nature of these granules prove correct, this suggests an interesting possibility as to the method by which the young intra-ovarian egg becomes infected, while it would not be unreasonable, on grounds of analogy, to suspect that a similar procedure might occur in the case of the hereditary transmission of the Treponema pallidum.

I shall resist the temptation to theorise upon the manner in which this view of the life-history of Spirochæta duttoni fits in with the facts known as regards other spirochæte infections, and will only point out that such a cycle of development would, in my opinion, afford a more satisfactory explanation of the mechanism of the relapse than some of the others which have been put forward.

In conclusion, gentlemen, you will realise that experiments such as I have described are inevitably long-drawn-out, and from their nature exceptionally difficult of interpretation. It is also inevitable that the necessary confirmation, if such be forthcoming, cannot be rapid. I may mention, however, the few pieces of confirmatory evidence which have come to my knowledge since the publication of my preliminary note.

First, Professor G. H. F. Nuttall was good enough to confirm my observations as to the presence of these granules in the eggs and ticks which I sent to him, and also to inform me that he had failed to find them in similar situations in some other Argassine ticks.

Secondly, Dr. A. Balfour, on searching the Argas persicus, which transmits the extremely interesting fowl spirochætosis of the Soudan which he has described, encountered similar granules in infected ticks, and was also able to confirm some of my experiments by injecting emulsions of tissues containing these granules, but no spirochætæ, with the result that the chick injected contracted spirochætosis.

Thirdly, I have recently been informed by Dr. S. T. Darling that he has found granular forms in the tissues of animals infected with the spirochæta of the relapsing fever which occurs in the Isthmus of Panama, which granules he, also, suspects to be biogenetically connected with the spirochætæ, and that inoculation of such tissue, apparently completely free from spirochætæ, was followed by infection.

These observations are naturally encouraging, but I should like it clearly to be understood that no one realises better than myself how far some of my results are removed from absolute proof and how much they stand in need of control and confirmation.

PRESENTATION TO A MEDICAL MAN.—At the Eversfield Chest Hospital, St. Leonards, on Dec. 16th last, Dr. Thomas Gambier was presented with an oil-painting of himself in his study, handsomely mounted and inscribed, as a token of the affectionate regard in which he is held by old friends and patients and as a testimonial to his indomitable zeal and persistent labours. Dr. Gambier founded the hospital 25 years ago at Friedenfels, St. Leonards, but the growth of the work necessitated the erection of more commodious premises. It is now proposed further to extend the hospital. The purchase of land opposite the existing building is nearly completed, and on that site it is hoped to erect a nurses' home, an out-patients' department, and a laboratory. Further, it is proposed to extend the verandahs in order to permit of more patients sleeping in the open air. Since its foundation some 5561 patients have passed through the hospital—268 during the year 1909—the majority of the cases coming from London and Birmingham.

REMARKS ON THE TREATMENT OF WOUNDS IN CONNEXION WITH THE RECENT RESULTS OBTAINED AT ST. GEORGE'S HOSPITAL.[1]

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ABOUT a year ago in the Bradshaw lecture I went into the subject of the treatment of wounds, and pointed out what I considered to be the essential factors to be attended to in trying to obtain an aseptic result. I also ventured to criticise some of the details of the methods which are so generally employed by surgeons at the present time, and which seemed to me to be imperfect from a bacteriological point of view, and thus were apt to lead to failure in securing the desired result.

It is most unfortunate that the idea seems to have grown up that the success or non-success of the treatment of wounds depends to a large extent on the materials used, and on the method by which the sterilisation of these materials is effected.

The result of this idea is that the failures in avoiding suppuration are apt to be attributed to the use of this or that material or of this or that method of sterilisation rather than to the true reason—namely, failure on the part of the surgeon to meet the bacteriological requirements of the case. Hence we have the extraordinary craze at the present time to banish the use of antiseptics, the failures being attributed to their employment and not to the real cause—namely, faulty manipulations on the part of the surgeon. As a matter of fact, efficient sterilisation of the instruments, materials, &c., can be brought about in various ways, but the asepticity of the results depends essentially on the care that is taken to prevent re-infection of the hands of the operator and his assistants, the instruments, materials, &c., during the course of the operation, for if these become infected again, sepsis in the wound may very readily follow.

The discussion which is going on about what is falsely called aseptic treatment as against the use of antiseptics is utterly unscientific and misses the real point at issue. It reminds one of the early objections raised against Lister's work. Many, under the impression that the essence of it was the use of carbolic acid, began washing their wounds with carbolic acid, and naturally failed to get the desired results. They accordingly wrote and spoke against the method, but they failed to recognise that the essence of the matter was not the use of carbolic acid, but the way in which it was used. So at the present time the stress which is laid on the fittings of operating theatres, the use of masks, rubber gloves, dry swabs, and all the other paraphernalia which are the fashion just now, is apt to overshadow the real point in obtaining an aseptic result—viz., what the surgeon is doing with his hands. It is in the manipulations carried out by the surgeon that the real essence of the matter lies, not in these various fanciful surroundings. The personal equation of the operator has more to do with the result than anything else.

There are certainly two schools at the present time, but the essential point of difference is not whether use should be made of antiseptics in the course of an operation or not. The essence of the question at issue is whether the treatment of wounds shall be looked on as a bacteriological problem or not. On the one hand we have those, among whom I may include myself, who look on the treatment of a wound as a bacteriological problem of a complex character and who take advantage of anything which aids in fulfilling the bacteriological requirements of the case, not forgetting, of course, that the tissues themselves have to play an important but secondary part. The other school looks on the action of the tissues as the essential element and the bacteriological question as of secondary importance. They try, therefore, to irritate the tissues as little as possible, and sacrifice various things which would be of value if the case were regarded as a bacteriological problem. In doing so they are apt to be led away by the non-essential surroundings, and forget what an element the personal equation plays in the result. It is, I fear, too often a case of keeping the outside of the cup and platter clean. In my opinion, this view is a very serious fallacy, and the essential point is what the surgeon does with his hands during the operation, and not the surroundings in which he operates.

I have felt certain for a long time that the results obtained by those who endeavour to do away with the use of antiseptics, and who rigidly employ what is falsely called the aseptic method, cannot be compared with those which are got when the treatment of a wound is looked on as a problem in bacteriological work and when the surgeon acts accordingly. Till recently, however, I had no actual statistics at hand as regards the frequency of suppuration in wounds treated by the recent methods, and consequently I have always felt that though I was right my argument was not altogether convincing, seeing that I could only speak generally. This difficulty has, however, been remedied by the publication in THE LANCET of Nov. 27th, 1909, of the results of the so-called aseptic method which have been obtained at St. George's Hospital.

Before, however, I go on to refer to these results I may mention a few of the points on which my conclusions adverse to this method were founded. In the first place, this so-called aseptic method, with its sterilisers, boiled water, heated towels, dry swabs, dry dressings, saline solutions, masks, &c., is full of loopholes, and does not in any way meet the bacteriological requirements of the case. To wash the skin with soap and water, even though the water is boiled, and then rub it over with a 1 in 500 solution of biniodide of mercury and spirit, is not in any way a reliable method of sterilising the field of operation. To lay instruments on a dry sterilised towel, and to work with them for perhaps half an hour, or an hour or more, without re-sterilising either them or the hands of the surgeon or his assistants is utterly opposed to any real attempt at keeping wounds aseptic. To wear the same overall during a whole afternoon's operations, even though it was sterilised in an autoclave in the first instance, is hardly consistent with asepsis. To put on this sterilised overall after the hands have been washed but before they have been disinfected, as is so often done, is to infect it at once, still more so to put it on and then subsequently arrange blankets, &c. What bacteriologist would ever dream of carrying out his work under such conditions? No doubt the answer is that the tissues themselves have a great power of dealing with organisms which come in contact with them, provided that the latter are not too numerous or too virulent, and provided that the tissues themselves are very tenderly dealt with, so as not to impair seriously their power of resistance. This is, no doubt, to a certain extent true, and very fortunately so, but one must not try the tissues too far, or place too much reliance on their action. The less the tissues have to do in the way of destroying bacteria the greater the probability, and, I may even say, the certainty of securing an aseptic result.

As regards the imperfections of these methods I also judge by the way in which many nurses who have been trained in hospitals where these plans are carried out act at an operation as indicating the training which they have received and the ideas which they have gathered from it. Nurses are always using the terms "sterilised" and "aseptic," but the majority of those whom one comes across in private practice have no real conception of their meaning. Ask a nurse who is wearing rubber gloves which have been well boiled, and who has perhaps been washing sponges in sublimate solution, and whose gloves are thus perfectly aseptic, to come and hold a retractor. What is the first thing that she does? Instead of coming promptly she rushes off to a tap or basin of water and carefully rinses off the antiseptic and soils her gloves, and then comes beaming with satisfaction at having demonstrated how thoroughly aseptic she is. Her annoyance when I decline her assistance after this performance cannot be concealed, and she evidently regards me as an extreme faddist and quite behind the times. Only quite recently I had two "aseptic" nurses to assist at an operation, who, having by my direction boiled some towels to surround the area of

[1] See paper on a Comparison between the Antiseptic and Aseptic Methods of Operation, with Special Reference to the Occurrence of Suppuration, based upon the results obtained at St. George's Hospital during the years 1906 and 1908 respectively, by H. S. Pendlebury, F.R.C.S. Eng., and Ivor Back, F.R.C.S. Eng. THE LANCET, Nov. 27th, 1909, p. 1572.

the operation, and not having a basin at hand, placed them in the commode till they were required! I could fill pages with the absurd errors which I have seen and which would be highly amusing if they did not imperil the well-being of the patient. One would have expected that, coming from a hospital where these difficult aseptic methods are employed, the nurses would have been especially thoroughly drilled in the extreme care that it is necessary to exercise in every direction during an operation if there is to be any certainty of success as regards the occurrence of sepsis. But, on the contrary, I find that so long as the instruments or materials have been immersed in boiling water, for however short a time, or heated in one of the imperfect sterilisers which are on the market, everything is all right whatever may have happened to these things since they were prepared.

Further, I frequently hear the experience of medical men who have been visiting hospitals abroad and at home where this treatment is carried out, and their reports of the aseptic results as obtained by the modern methods are not particularly favourable, and they constantly express themselves puzzled as to how we obtain the results which we do at King's College Hospital, where our operating theatre cannot be said to be in any way a model of a modern operating theatre.

I have also been very much impressed by what one hears of the difficulty of sterilising ligatures, skin, &c., and of the frequency of stitch abscesses (I have known a large collection of pus in the pelvis after a clean ovariotomy spoken of as a stitch abscess), things which very seldom come under our notice, and I have been especially struck by the incredulity which is evident when, in discussing these matters, I have said that I have had little or no experience of them. The conversation is at once dropped, evidently from a desire not to lead me to imperil my immortal soul by further perjury. As an example of this point and the results generally obtained in Germany, I was very much interested, in reading Bier's "Text-book on Hyperæmia," to come across the following remarks on p. 287 in the English translation. In speaking of the treatment of infected wounds he says:—

> Not infrequently laparotomies which cannot be executed aseptically and even radical operations for hernia, are followed by a mild small infection leading to the formation of sinuses.

And again, on p. 334, in the course of some remarks on the prophylactic treatment of wounds suspected of infection, he says:—

> In connexion with this experience [the failure of the hyperæmic treatment in some cases] are experiments which I have undertaken with a view to change the aseptic treatment of wounds. It would be incredibly foolish for a surgeon to question its brilliant accomplishments. But in spite of asepsis, we have not yet progressed so far that we can guarantee with certainty the healing by first intention of all wounds adapted to suture. How often, for example, does it occur that silk threads are expelled, or that a wound which on the whole has healed by first intention shows small defects, (stitch abscesses, sinuses)!

These are to me astonishing statements and what astonishes me most is the matter-of-fact way in which these failures are spoken of, as if they were every-day occurrences. If I had a "small defect" in a wound I should be very seriously unhappy, and should not rest till I had tried to find out what was the error which I had committed.

The result of these experiences is manifested in various ways. Thus we have many surgeons objecting to buried sutures for the reason that they are very apt to be extruded. We have, again, various devices for bringing together the edges of the skin so as to avoid if possible the occurrence of stitch abscesses. We have the abandonment by surgeons of many useful materials, such as catgut, marine sponges, &c., on account of the supposed difficulty in disinfecting them, the idea being that nothing but heat is a trustworthy disinfecting agent. To show how this fear of the danger of infection, which can only be inspired by experience, affects the conduct of an operation, I may mention that I have more than once had remarks made to me by distinguished visitors as to the mode in which I deal with the sac in performing radical cure of hernia. In the great majority of cases, for reasons which I need not go into here, I twist the sac and push it upwards under the abdominal wall, and the objection that is made is that in leaving a sac so tightly twisted as I do I am leaving a piece of dead tissue which will lead to suppuration. I can only say that in my experience this has not occurred, and that even if it were dead, which I doubt, to leave a piece of dead tissue, provided that it is aseptic, is a matter of little or no consequence from the point of view of infection, provided the measures employed for keeping out bacteria are really efficient.

In yet another direction I notice the way in which the experience of those who employ this aseptic treatment affects their practice—viz., that they hesitate in doing things which can readily be done safely and which ought to be done. For example, quite recently a distinguished orthopædic surgeon, in speaking of "tuberculous abscesses," stated that "numbers of children die in consequence of the routine opening of tuberculous abscesses," and he holds that better results are obtained if these abscesses are not, as a rule, dealt with at an early period. This is quite contrary to our experience, and is, to my mind, only another example of the failure of the so-called aseptic methods. That these methods should fail in such a condition as a psoas abscess is only what one would expect, because there we are dealing not with an opening in the tissues, lined by healthy tissue with its strong anti-bacterial powers, but with a cavity containing putrescent material, the walls of which are themselves composed in great part of degenerated devitalised tissues. That is just the sort of case where we would expect failure and it is evident from the passage I have quoted that this expectation is correct. On the contrary, the success obtained by dealing early with psoas abscesses was one of the points of which Lord Lister was always most proud, and we, who have been his immediate pupils, find that this success can still be obtained even to a larger extent than formerly.

I have referred to the results obtained at St. George's Hospital, as published in THE LANCET of Nov. 27th, and I may now make a few remarks with regard to them. In the first place, it seems to me that the gentlemen who collected the results are quite satisfied with them, and in fact they end their paper by saying that "We hope that these statistics will prove useful and of interest to the practitioner, and help him to give a patient a fair idea of the average chance of aseptic healing in the commoner operations." The main object of the paper appears to be to contrast the results which they obtained at St. George's Hospital in the first place when they employed antiseptics, in what way is not exactly stated, and in the second place since some alteration was made in regard to the use of antiseptics. It is not really clear from the paper what the alterations were, but in any case the results as obtained in 1906 by the methods then employed, which they speak of as antiseptic methods, were 13·6 per cent. of septic cases, falling in 1908 under improved methods to a percentage of 7·2 of septic cases. As the details of the two plans are not fully given I cannot criticise them, but it strikes me that probably the whole difference in the results is accounted for by the fact that in the second period nearly all the surgeons used rubber gloves; in the earlier period this was apparently not the case. There is no doubt that boiled rubber gloves are of the greatest value where the methods of disinfection of the skin and especially of the hands, are faulty, and I believe that this point forms practically the essential cause of the difference between the results in the two years which are contrasted, and not the question of the use or disuse of antiseptics.

The authors, in addition to mentioning the total cases, refer especially to five groups, and these show very interesting results. Taking the 1908 statistics, the class of cases in which the best results are noted was apparently operations for quiescent appendicitis where the percentage of septic cases is only 3·3 per cent. This agrees with what we are now thoroughly familiar—namely, that the peritoneum has a power of dealing with bacteria which may come in contact with it in a way which is not equalled by any other tissue of the body. The opposite extreme is given by the operations on the breast, where the percentage of septic cases reaches the large amount of 12·2. This result is exactly what I should have expected. Operations for cancer of the breast are extensive operations and take a very considerable amount of time, and thus on the one hand ample opportunity is afforded for infection of the wound where no sterilisation of instruments or hands, &c., takes place during the course of the operation, while the tissues which are dealt with have not nearly the efficacy as bactericidal agents which the peritoneum has.

I think that Mr. Pendlebury and Mr. Back are to be congratulated on the very careful way in which they have gone into the hospital records and on the very fair way in which they have stated the results which have been obtained. In my opinion, however, if these are the best results that can be got by the recent aseptic methods the sooner they are

abandoned and their place taken by a line of treatment in which the main attention is paid to the bacteriological problem the better for the well-being of the patient and the ease of mind of the surgeon.

I may say that the paper to which I am referring has created a great deal of interest and excitement among the junior staff (house surgeons, &c.) at King's College Hospital, and I was very much gratified to find that on their own initiative, and without any suggestion on my part, they had gone into the results which have been obtained in my wards since the beginning of 1901, and to my surprise and pleasure I have received from them complete and very carefully worked out statistics of all the clean cases on which I have operated during that period, the results of which I have verified and shall now produce. I may say that these statistics have been put together on the same lines as the statistics at St. George's Hospital, which I consider to be the correct ones—that is to say, they are only statistics of clean cases; in other words, of cases where the surgeon had unbroken skin to start with and where in the course of the operation he did not have to open any mucous cavity, nor did he come into contact with any focus which was the seat of septic infection. For example, intestinal resections, gastro-enterostomies, operations on the gall-bladder and bile ducts, renal calculus, &c., are excluded, and of course all operations on the rectum, bladder, urethra, mouth, throat, abscesses, septic sinuses, &c. I am very much struck by the large proportion of these cases as contrasted with "clean" cases which occur in one's hospital work.

The numbers work out at a total of 1028 clean cases operated on during the eight years, and of these 19 are classed as becoming infected. It is, however, very doubtful whether several of these 19 cases should be included as I shall mention immediately.

Dividing the cases into classes as in the St. George's Hospital statistics, the numbers come out as follows:—

—	Cases.	Infected.	Percentage of infection.	Percentage of infection in the St. George's Hospital cases in 1908.
Radical cure of hernia	235	4	1·7	9·6
Excision of the breast	112	2	1·8	12·2
Operations on the thyroid gland	28	0	*Nil.*	6·2
Operations on the male genital organs	51	2	4	6·5
Operations for quiescent appendicitis ...	89	1	1·1	3·3
Miscellaneous	513	10	1·9	6·3
Total	1028	19	1·8	7·2

The miscellaneous cases include, for example, 91 operations on bones (recent fractures, ununited fractures, deformities, tumours such as exostoses, &c.), 17 operations for tuberculous disease of bone where there was no external opening, 31 operations on joints (chiefly displaced or loose cartilage), 17 operations on tuberculous joints (arthrectomy, excision, &c.), 32 clean laparotomies (ovarian tumours, enteroptosis, explorations, adhesions, &c.), 14 amputations (excluding amputations for gangrene), 73 operations for tuberculous glands (all very extensive and prolonged operations), 22 operations for malignant glands, 20 operations on the kidney (nephropexy and nephrectomy), 17 cases of spinal abscess, 80 operations for varicose veins (usually five or six wounds in each case), and a variety of other cases.

From the above figures it will be seen that there is a very marked difference between our results and those obtained at St. George's Hospital. Had the results been the same as in that hospital, instead of 19 septic cases we should, according to their 1906 statistics, have had 140 septic cases, or according to the improved results of 1908, the numbers ought to have been 74.

Apart from mere numbers, it is interesting to note why and when the cases became septic. I shall therefore run over the various cases.

Hernia (4 Cases).

1. Case of large ventral hernia in a very fat woman; a drainage-tube was inserted at the time of the operation. In this case there was no sign of infection till the ninth day. No doubt the infection in this instance entered through the drainage-tube subsequent to the operation.

2. Case of large ventral hernia in a woman. Here the course at first was quite aseptic. The wound was dressed and the stitches removed at the end of a week; on the sixteenth day the dressing was again changed and a collection of serum was seen to be present. A tube was therefore inserted. Three days later the fluid coming from the tube was somewhat turbid. No doubt infection through the tube.

3. A little child, 2 years old, with strangulated hernia and muddy fluid in the sac. He also fouled his dressings. Slight suppuration. It is a question whether this case should be included among clean cases, as we know that in a very short time after strangulation the fluid in the sac contains bacteria.

4. Also a child and also soiling of dressings. In this case I had to remove the deep stitches before healing occurred.

Male Genital Cases (2 Cases).

5. Case of boy with undescended testicle, in which I brought down the testicle and secured it to a wire cage by a stitch passing through the lower end of the scrotum, in the manner which I described some years ago. When this stitch was removed 10 days later there was a drop of pus at the point of exit. Immediate healing.

6. Hydrocele and hernia. Sac of hydrocele dissected out and radical cure for hernia. Drainage tube put into the lower end of the scrotum, but in spite of that a considerable hæmatoma formed. Drainage tube left out after eight days. At the end of 14 days blood-clots with which some pus was mingled were squeezed out. Here sepsis through drainage-tube subsequent to the operation. It is very difficult to prevent infection when a tube has to be kept in the scrotum for several days.

Quiescent Appendicitis (1 Case).

7. Operation three weeks after a severe attack of appendicitis. First dressing and stitches removed on the tenth day, when some accumulation was found in the wound which necessitated daily dressings for about ten days. The registrar's notes state that it was septic.

Excision of the Breast for Cancer (2 Cases).

8. The operation was performed on Nov. 22nd. First dressing and tube left out on 24th. Next dressing and stitches removed on Dec. 1st, when the wound was healed and everything looked healthy. On Dec. 7th some purulent discharge was noticed coming from the wound which on examination was found to contain staphylococci. Probably a collection of serum in the wound which had become infected through a stitch track.

9. Here the tube was left out on the second day. At the second dressing on the sixth day some pus was found and the tube was reinserted. The sepsis was quite mild, the temperature only once reaching 100·4°.

Miscellaneous Cases (10 Cases).

10. Intermittent hydronephrosis, in which I performed the plastic operation on the pelvis of the kidney, described by me in THE LANCET in 1907. The wound healed well, and we were about to discharge the patient, when, 25 days after the operation, he was jumping about in bed (it was Christmas time) and suddenly felt severe pain in the loin. This was followed by fever and the formation of a swelling, which, when opened, was found to contain urine and pus. It quickly healed with drainage. I think that during his violent movements some point in the line of union of the pelvis of the kidney gave way and urine was extravasated. I doubt, however, whether this case should come among clean cases. The urine was not examined bacteriologically before the operation, but we know that in many of these cases bacteria are present in the urine.

11. Bad club-feet in a child. The astragalus on each foot was removed. Both sides healed by first intention, but on one side a little point in the scar broke down on the twelfth day, and was some days in healing. At this point the skin had been a good deal bruised by the retractor, and if organisms were really at work in causing the breaking down (there was no suppuration) they probably entered through the injured skin rather than at the time of the operation;

indeed, it is doubtful if this case should be included among the septic cases.

12 and 13. Two cases of tuberculous glands in the neck. One of these cases had acute tonsillitis at the time of the operation, and there is a note by the registrar that the glands when removed were infected. There were also difficulties with the anæsthetic, and the administrator's fingers and the saliva were dangerously near the wound. In the other case infection must have occurred at the operation as pus containing streptococci was evacuated on the second day.

14 and 15. Two cases of operation for un-united fracture of the femur. In both cases drainage tubes were used. In one the wound went on quite well till the tenth day, when the dressings were soiled with an enema and fæces, and this fact was not at once reported. Suppuration, though limited in amount, occurred. In the other case the right femur had been fractured about its middle on three different occasions and there were great deformity, stiffness of the knee, and a large swelling at the seat of fracture. The operation was very extensive and was accompanied with a good deal of bleeding. Two deep-seated vessels could not be tied readily and it did not seem advisable to prolong the operation. Hence Spencer Wells forceps were left on the bleeding points for two days, the wound remaining open at that part. Suppuration was evident on the fifth day. Considering all the difficulties of the case this result is not surprising.

16. Excision of the elbow-joint for ankylosis after acute osteomyelitis of the humerus 5 years previously. For 3½ years sinuses had remained open and various operations had been performed for the removal of dead bone. These sinuses had, however, healed 18 months before the present operation. Suppuration was evident on the fifth day.

17. Excision of hip. This was a case of excision in a man who had a most remarkable series of deformities in the way of stiff and distorted joints after an acute illness. There were numerous pustules on the skin and it was very difficult to keep him clean; in fact, the operation was delayed so as to let the pustules heal. The hip was excised so as to give him movement in one joint and a drainage-tube was inserted, but the wound suppurated.

18. Tuberculous deposit in lower end of the tibia. This was the case of a tuberculous deposit in the lower end of the tibia, which was thoroughly cleared out, and the large cavity in the bone was filled up with pieces of decalcified bone. These were supplied by the instrument maker in alcohol and were used as delivered. Sepsis at once occurred, but the wound healed rapidly after removal of the decalcified bone.

19. Stitch abscess after nephropexy. Wound closed without drainage. Stitches removed on ninth day; there was pus along the middle stitch tracks.

Analysing these cases, we may note in the first place that it is very doubtful whether two (Nos. 3 and 10) really come under the category of clean cases; however, as they have been given to me, I put them in. In one (No. 11) the sepsis was doubtful. In No. 12 the glands were probably infected at the time of the operation. In three of the cases sepsis followed soiling of the dressings with fæces and urine (Nos. 3, 4, and 14). Further, it may be noted that in many of the cases the sepsis was very slight, and in none did it lead to any serious consequences; in fact, I may say that none of the 1028 clean cases died.

A point of importance is that in seven of the cases (Nos. 1, 2, 8, 9, 14, 15, 17) drainage tubes were inserted at the time of the operation. In very fat people (e.g., the ventral hernia cases) and in very large wounds (e.g., breast cases) I think it is advisable to introduce a drainage tube for a few days so as to prevent the collection of serum which is otherwise apt to form. This, however, increases the septic risk because it means several dressings, and at each of them septic infection of the tube may occur unless the dresser is very careful. In our list there were seven cases in which infection showed itself late, and in six of these it in all probability entered through the drainage opening and not at the time of the operation.

Cases of sepsis after wounds fall under two heads—viz., those where infection takes place at the time of the operation and those where it occurs afterwards. In the above list the cases where the infection almost certainly occurred during the operation were six in number—viz., 7, 12, 13, 16, 17, and 18). This gives an operation sepsis of 0·6 per cent.

A most important point to be noted is the conditions under which these results were obtained. In the first place we have only one operating theatre, used by all the surgeons and for all cases, septic or otherwise, and also used for lectures. Our theatre is very much as it was built and fitted out some 60 years ago. With the exception of a tesselated floor we have none of the modern arrangements; in fact, I expect it is the worst operating theatre in any of the large London hospitals.

Another and very important point is that the after-dressing of the cases is left to the house surgeon; indeed, in most cases, if I have a very full afternoon, I leave the stitching up of the skin wound to the house surgeon while I get on with the next case. Of course, a house surgeon, however excellent, is only a beginner, and to him the precautions necessary to procure an aseptic result are not yet automatic; he has constantly to think what he is about from an aseptic point of view, and I think it is very remarkable that the number of septic cases has been so few when we remember that the men change every six months, and that during these eight years there have been 17 house surgeons and sets of dressers. Fortunately there is a very healthy spirit of rivalry among our house surgeons. We have three house surgeons, one for each full surgeon, and they are very strong partisans, each trying to show better results than the others. When a house surgeon takes up his appointment he sets two chief aims before him. The first is to put a larger number of cases through his wards than the others, and the second to show better results, more especially as regards asepsis. With the first aim I have no sympathy whatever. I do not see why I should be overworked simply in order that my staff may crow over the others. The second aim, on the contrary, I encourage in every way. It means that the men take their work more seriously: it develops habits of care and thoughtfulness, and it trains them to regard the aseptic treatment of wounds as a matter of paramount importance. Each faction watches the others most closely, and if suppuration, however slight, occurs in any case we very soon hear of it. I venture to think that this is a spirit which should be very carefully fostered. Without it, indeed, I could not leave the after-treatment of the wounds to the house surgeon with any degree of comfort.

I may also draw attention to one point which shows very convincingly to what an extent the asepticity of the results depends on the personal equation. The cases were given to me arranged in years, and I find that in four of these years there was 1 septic case each year, in two years there were 3 septic cases each year; in one year there were 4 septic cases, and in one there were 5. These two years in which 9 septic cases occurred, nearly half the total, were consecutive years, and for a time I was puzzled to account for this large proportion of failures. It occurred to me, however, to note the dates of admission of these 9 cases, and I then found that 7 out of the 9 occurred under the care of one house surgeon. As I had 17 house surgeons during these eight years this leaves 12 septic cases to be distributed among 16 men. As a matter of fact, several house surgeons had no septic case during their term of office, some had one case, and some had two.

I do not put these results forward as an example of the best that can be obtained; in these cases much has been left to beginners, and I think they are to be congratulated on the careful way in which they have done their work. But as experience and skill increase the precautions necessary to secure an aseptic result become more or less automatic; one feels instinctively if anything is wrong, and failures become more and more only the result of accidents.

One other point is shown by these facts—viz., that the extravagant amounts which are sometimes expended on operating theatres, fittings, &c., are to a large extent unnecessary. I have no objection to a nice well-fitted operating theatre at all, but things are sometimes carried to an extreme, and the operating theatre is apt to assume an undue importance in the eyes of those using it. Our operating theatre and arrangements cannot compare for a moment with those at St. George's Hospital, and yet they get four times as much sepsis as we do.

I think that the above facts show that there is a great deal more in the treatment of wounds than simple cleanliness and the avoidance of irritation. I do not believe that a surgeon will get the best results unless he takes the view that suppuration in clean wounds is avoidable, and that the way to avoid it is to look on the treatment of a wound as a bacteriological problem, and to act accordingly.

Harley-street, W.

A CASE OF POSTURAL ALBUMINURIA IN A BOY THE SUBJECT OF CHOREA.

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A COPIOUS literature has gathered round the subject of postural albuminuria, a designation first proposed by Dr. A. W. Stirling to indicate that the most constant factor to be observed in cases of albuminuria in apparently healthy persons is the assumption of an upright position; in other words, the presence of albumin is determined by the erect posture of the body and independently of food and all other conditions. As a more correct designation for this variety of albuminuria Heubner suggested the word "orthostatic," a term which at the present time is most commonly used by continental writers.

Two years ago it was pointed out by Jehle that the presence of albumin is not directly due to a change of the trunk from a horizontal to an erect posture, but to lordosis of the lumbar spine, and he suggested that the term *albuminurie lordotique* should be substituted for that of *albuminurie orthostatique*. He showed that the usual relation of albuminuria to posture could be reversed by altering the curvature of the lumbar spine. Thus, if the urine of a patient when lying in bed contained no albumin, the presence of this body could be determined by producing lordosis by means of a cushion placed for a few minutes under the lumbar spine. Conversely the occurrence of albumin in the urine voided when the patient was out of bed could be prevented by getting him to lean forwards whilst standing or walking, thus producing a kyphosis in place of the lordosis natural to the erect posture. Jehle attributes the albuminuria to pressure on the inferior vena cava which leads to a venous stasis in the kidneys. He believes that the erect posture has a bearing on the production of albuminuria only in so far as it leads to venous stasis, and that in normal individuals this stasis is too slight to cause albuminuria. But both Bruck and Schmiedicke claim to have produced it in perfectly healthy adults by means of factitious lordosis.

Nothmann examined the dead body with a view to investigate the influence of lordosis on the position of the kidneys. Sections were made of the body, fixed by freezing in a position of lordosis. He found that the projecting bodies of the lumbar vertebræ caused a separation of the kidneys and a slight rotation on their vertical axes, so that their median sides were pushed forwards, thus stretching the renal vessels. Such changes in position if they occurred during life would tend to retard the circulation of blood through the kidneys. This view is corroborated by similar experiments made by Turrettini. Nothmann, who has studied the influence of lordosis in children suffering from scarlatinal nephritis, finds that the quantity of albumin varies to some extent with the degree of curvature imposed upon the lumbar spine.

It is stated that in postural albuminuria the erect attitude also determines a considerable diminution in the quantity of the urine. Turrettini found a difference of nearly a half between the amount of urine passed during 12 hours in a horizontal and during 12 hours in a vertical position; and the result was the same whether the patient passed the day or the night in bed. Thus if he stayed in bed during the day and was up and about during the night there was nocturnal instead of diurnal oliguria.

Orthostatic albuminuria is chiefly met with in children between 10 and 13 years of age, a period at which growth is proceeding rapidly, and which is likely to be attended by weakness of the muscular system and undue flexibility of the spinal column, both of which conditions would tend to exaggeration of lordosis in the erect posture. Many authorities, however, attach less importance than Jehle and others to the mechanical interpretation of orthostatic albuminuria. They admit that venous stasis is the cause, but attribute this rather to a general lowering of arterial tension than to the results of local spinal pressure. They point out that the subjects of orthostatic albuminuria are usually anæmic, easily fatigued, and possess susceptible vaso-motor systems. Hence in them there is a greater disproportion than in normal persons between the blood pressure of the erect and that of the horizontal posture. It is also stated that the albuminuria of interstitial nephritis with cardiac hypertrophy and increased arterial tension is not influenced by posture, whereas that of parenchymatous nephritis in cases where the arterial tension is lowered may vary with changes in the position of the body.

The question of the relationship of orthostatic and other forms of cyclic albuminuria to nephritis has been much discussed. By most authorities two classes are recognised. In the one class there is no evidence either of a past or a present renal lesion. In the other class there is evidence that the postural albuminuria is symptomatic of an infectious nephritis. It is admittedly difficult to draw a sharp clinical boundary between the two classes. Aubertin believes that the more carefully the subject is studied the closer appears the connexion between orthostatic albuminuria and nephritis.

The opposite view is strongly held by Teissier, who says that true orthostatic albuminuria, although rare, constitutes a distinct type which clinically presents marked differences from the symptomatic form. He believes that the true form is related to an incomplete development of the glomerular apparatus and may be compared to the albuminuria sometimes met with in young infants, which was attributed by Virchow to a late or insufficient development of the glomeruli. Teissier says that it occurs in children with perfectly healthy kidneys, in whom diet or fatigue has no influence in producing albuminuria, this being entirely dependent on a passage from the horizontal to the vertical posture. He says that the urine is pale and shows an abundant deposit of mucus; no renal elements can be detected. The albumin is almost entirely serum albumin; if any other proteid is present it is nucleo-albumin, and only very rarely is there a small quantity of globulin. According to Teissier, one of the most characteristic features of this idiopathic type is the perfect permeability and functional activity of the kidney as shown by the phloridzin test, a hypodermic injection of this substance being constantly followed by an adequate degree of glycosuria. On assuming the erect posture this serum albuminuria appears within ten minutes, and on returning to the horizontal position the quantity of albumin gradually diminishes, and in 45 to 50 minutes the urine is quite normal. Standing still has more influence in producing albuminuria than walking about, and violent exercise often leads to its disappearance, whereas in the symptomatic type exercise and fatigue cause an increase in the amount of albumin. The subjects of true orthostatic albuminuria are frail, light in weight, and show neuropathic tendencies; their arterial tension is low, and they are liable to catarrhs and to cold, bluish extremities.

Teissier's arguments, based mainly on the peculiarities just enumerated, do not appear to us very convincing. Serum albumin is the chief constituent of the albumin due to nephritis. The phloridzin test has given a positive result in some cases of nephritis, as in that following scarlet fever. But even if the features mentioned by Teissier are not pathognomonic it is impossible to deny that occasionally a true orthostatic albuminuria occurs when not even a suspicion of nephritis can be entertained; witness, for example, a case observed by Dixon Mann and recorded by him in his book on "The Physiology and Pathology of the Urine."

Furthermore, the important researches of A. E. Wright and G. W. Ross have shown the possibility of discriminating the albuminuria which occurs independently of renal disease from that which is due to such disease. For the technique of their methods we must refer to their original paper. They took as their criterion (1) the percentage of salts in the urine, and (2) the excretory quotient. By the latter is meant "the expression for the efficacy of the kidney, which is obtained by dividing the salt content of a patient's blood into the salt content of his urine," the formula being: minimum dilution of the urine which effects complete hæmolysis, divided by minimum dilution of the serum which effects complete hæmolysis. In physiological albuminuria they found that the percentage of NaCl in the urine and the excretory quotient were fully

equal to those obtained upon healthy persons, contrasting markedly with the results obtained in connexion with renal disease. They also found that the administration of calcium lactate increased the coagulability of the blood in both varieties of albuminuria, but whereas it caused a disappearance of albumin in cases of physiological albuminuria it did not diminish the output of albumin in cases of albuminuria dependent on renal disease.

In the following case recently under our care there was no direct evidence of nephritis, although the possibility of its existence was difficult to exclude.

A boy, aged 12 years, was admitted to the Manchester Royal Infirmary on Sept. 6th, 1909, suffering from chorea. At the age of six years he had an attack of "diphtheria"; this was followed by weakness of the legs, which was made worse by an attack of "influenza" a year ago. Last June his face began to twitch and two months later his arms and legs were also affected with choreic movements. On admission these movements were observed in the face and in the hands and feet; they were slight in degree. The strength of the arms was good, that of the legs at hip, knee, and ankle was reduced; the weakness was general, no group of muscles being specially affected. The knee-jerk was normal. The boy was thin and his face was pale and somewhat puffy. His heart was normal; there were no signs of rheumatism. He was put on "ordinary diet" and given a mixture containing iron and arsenic. In a few days the choreic movements ceased and about ten days after admission he was allowed to get up. It was then noticed that his urine, which previously had been normal, contained a trace of albumin. He was put back to bed and given milk only, when the albumin disappeared. After being in bed for two days he was allowed to get up for four hours, when the first urine he passed contained albumin. The next day he remained in bed, and the urine was free from albumin. He remained in bed the three following days and took "ordinary diet," and on one of these days two eggs. Still his urine, repeatedly examined, contained no albumin. Subsequently the experiment of keeping him in bed for a day, and then allowing him to get up and walk about the ward, was repeated very frequently for some time. The result was always the same. When he was in bed the urine voided contained no albumin; after he had assumed the erect posture a trace of albumin was always found. The amount of albumin varied from the slightest haze to a distinct trace; nothing abnormal was seen under the microscope; there were no casts and no crystals.

On Oct. 25th, the patient being in bed, artificial lordosis was produced by placing a doubled-up pillow under his loins and removing the pillows from beneath his head. This posture was maintained for ten minutes, then the boy passed urine; this showed a trace of albumin, although that voided before the experiment was free from albumin. The experiment was repeated on several occasions but the results were not constant, sometimes the factitious lordosis was followed by albuminuria, sometimes no albumin could be detected. On Oct. 25th the blood pressure was taken by means of a Riva-Rocci sphygmometer and found to be 95; on Oct. 27th it was 100. A blood count was as follows: red cells, 4,624,000; white cells, 8000; hæmoglobin index, 0·9. Blood films showed nothing abnormal. On the same day the coagulation time was kindly estimated by Dr. G. E. Loveday and found to be slightly prolonged; at 37·5° C. the blood clotted within 2¾ minutes, the normal time being about 2 minutes.

Treatment by arsenic and iron and the application of massage and electricity to the legs was continued till Nov. 4th, when the boy left the hospital greatly improved in health; his face was still pale, but he was fatter and could walk much better.

In the above case there were no grounds for believing that the association of chorea with albuminuria was other than accidental. With regard to the possibility of nephritis, the only evidence was the pale puffy face, together with a history of diphtheria and influenza. The urine, apart from orthostatic albuminuria, was perfectly normal.

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THE DIAGNOSIS AND TREATMENT OF DUODENAL ULCER.[1]

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CHRONIC DUODENAL ULCER.

THERE are few diseases the symptoms of which appear in such a definite and well-ordered sequence as is observed in duodenal ulcer. It is true that there are cases, of which fuller details must presently be given, in which the regular appearance of the symptoms is absent, or in which one symptom is so exaggerated as to dwarf, or even destroy, the value of others. But these exceptions are few, and they do not belittle the value of the general statement that the symptoms of duodenal ulcer are definite and not easily to be mistaken, and that they appear in an order and with a precision which are indeed remarkable.

The patient may date his complaint from an early period in his life. It is not very uncommon for a man, in answer to the question as to how long he has suffered, to reply, "All my life." A man, aged 61 years, upon whom I operated had first experienced symptoms at the age of 19; others had symptoms "as long as they could remember." This goes to show that the ulceration may begin at an early period in life, and the symptoms may, with periods of repose, continue up to middle age or even to advanced years. As a rule the patient is in middle age, from 25 to 45, and males are more frequently affected than females. If the earlier history is well remembered the patient will say that insidiously, almost imperceptibly, he began to suffer from a sense of weight, oppression, or distension in the epigastrium after meals. At the first the discomfort may apparently be capricious, but it is not long before notice is taken of the fact that it comes usually two hours or a little more after food has been taken. Immediately after a meal there is ease; if pain or discomfort were present before, the meal relieves them and banishes them completely for a time. Then, again, the pain is felt in two hours, three hours, four hours, or sometimes even six hours later. As a rule the pain comes gradually, and gradually increases, becoming more severe and being accompanied by a sense of fulness, distension, a "blown out" feeling; there is an eructation of bitter fluid or of gas, which affords relief. The interval between the taking of food and the onset of the pain is very remarkable; it is constant from day to day if the character and quantity of the food remain the same. If the food is entirely liquid the pain comes rather earlier; if it is heavy, solid, "indigestible," the pain comes later; with an ordinary meal, of liquid and solid, the pain very rarely appears in less than two hours.

Many patients will volunteer the statement that the pain commences "when they are beginning to feel hungry," and I therefore suggested in one of my early papers the term "hunger pain" as descriptive of this particular symptom. The pain as a rule is noticed at first only or chiefly after the heaviest meal of the day. If dinner is taken between 1 and 2 P.M. the pain will come with unvarying regularity at, or near, 4 P.M. For a long period this may be the only time of day when discomfort is felt, but later in the attack, or in subsequent attacks, it is noticed that after every meal the pain comes at its characteristic interval, that by every meal the pain is relieved, only to return in due time. When inquiry is made from a patient as to whether food causes the pain he will not seldom answer "Oh! no, food always makes the pain better; the pain comes when I am beginning to feel hungry." It is a very characteristic feature of the pain that it wakes the patient in the night, and constantly the time of the waking is said to be 2 o'clock. The relief of the pain by food, quickly realised by patients themselves, leads to the practice of keeping near at hand a biscuit or some other food or drink which can be taken at once. Many patients carry a biscuit in the pocket or have a glass of milk and a piece of bread and butter ready at certain times to be taken at the moment of the onset of pain. It is a common experience to find that patients place by their bedsides some food to be taken in the early hours of the morning when the pain

[1] A paper read at the Royal Society of Medicine on Dec. 14th, 1909, opening a joint debate in the Surgical Section

awakens them. The regular appearance of the pain after definite intervals from the taking of food is remarkable and is consistent.

The pain is often preceded or accompanied by a sensation of weight or of fulness and distension in the epigastrium; it is described as "boring," "gnawing," "burning." It may be relieved by belching, and constant efforts are often made to bring about the eructation of gas, which is followed by momentary relief. Sometimes there may be a slight regurgitation of food and the patient complains that the taste of this is bitter or acid; the throat then feels hot or as if scalded, and the teeth are said to feel as if made of chalk. A few patients complain that when the pain is beginning to develop a free gush of saliva may occur. The swallowing of this may give temporary relief to the pain. In some cases the flow of saliva may be copious and distressing.

For long periods, sometimes throughout the history of the case, the pain remains confined to the epigastrium, but it may strike through to the back or pass round the right side. When the pain is severe relief is often gained by pressure, and I have known patients, wakened in the night, to hug a pillow to the abdomen to obtain relief in this way. On some occasions, though this is infrequent, the pain is said to be "cramp-like" in character, a sort of spasm is felt with exacerbations and remissions, as in all forms of "colic." It is very probable that a spasm of the pylorus, protective, no doubt, in its character, is actually present; for such a condition may, as I pointed out several years ago, be witnessed during the conduct of an operation. The pyloric muscle hardens by degrees until a state of firm contraction is reached, when a solid cylindrical whitish mass forms, which imparts a feeling similar to that experienced when the normal uterus is handled. The spasm slowly passes away and the stomach assumes its normal appearance. This sensation of cramp is often accompanied by a feeling of great epigastric distension. I have twice seen this cramp well marked in patients who were operated upon under local anæsthesia only; they both described their sensations at the moment as one of "bursting" and "distension."[2]

Throughout the whole period during which the pain is felt the appetite remains good. In many cases the patient volunteers the statement that he feels a keen relish for his food, takes it with good appetite, and enjoys it. Frequently he eats less than he feels he would enjoy because experience has taught him that excess, or even satisfaction, is apt to be followed by an increase of pain, or pain of a more enduring character. Fluid food when taken to the exclusion of all solids often causes the pain to come earlier after food and to last longer than when the ordinary meals are taken. A patient will often say that he feels worse when he is strictly dieted in this way; but, as a rule, persistence in liquid diet, especially during the earlier stages of the disease, will bring relief after a time. Vomiting is very infrequent; it is rarely present until stenosis develops; and stenosis appears only in the later periods when the ulcer or ulcers are healed. The majority of the patients upon whom I have operated have never vomited.

These are the characteristic symptoms described by the patient in the anamnesis. Upon them alone a confident diagnosis of duodenal ulcer may be made. Perhaps the most characteristic feature of duodenal ulcer is the periodicity of the symptoms and their recurrence from time to time in "attacks," their complete abeyance in the intervals. A patient who has suffered for years will say that an "attack" comes on as a result of exposure to cold, or getting the feet wet, or a hasty or "indigestible" meal, or worry, or overwork. A cause can almost always be assigned for the onset of symptoms; a recurrence of the cause is always followed by a reappearance of the symptoms. The most common of all these causes is "getting cold"; in consequence the great majority of the patients will say that the attacks are especially prone to come in the winter months—December, January, or February. In the summer the symptoms are almost always absent. One patient of mine was perfectly well for three years when in India. He returned to England in November and within a fortnight had "caught a chill" and all the symptoms returned.

[2] I have oftened wondered since this, whether the "colic" described by patients (hepatic colic, renal colic, intestinal colic) is due, as we have always supposed, to the contraction of unstriped muscular tissue; it is possible that it is rather the result of the distension which occurs behind the segment in which the muscular spasm is occurring.

The "attacks" vary in length from two to three weeks up to several months. It is remarkable that an attack may frequently be cut short by a few days' rest in the country or at the seaside. Two of my patients, medical men, told me that a "long week-end" at the sea, with plenty of open-air exercise, free from the anxieties of practice, would always cut short an attack in the earlier years of their trouble. In the end the pain may become a matter of daily experience, but it still retains its characters as I have described them. In the intervals between the attacks there is complete immunity from suffering, food is taken with full enjoyment and with keen zest; there is no discomfort of any kind; weight is gained and mental and bodily vigour are at their highest. So complete may the recovery be that the very suggestion that the former attacks have been due to organic disease may be scouted or received with the tolerant smile of disbelief. The explanation is given that there has been "hyperchlorhydria" or that the case is one of "acid dyspepsia" or possibly of "neurosis." The idea is deep-rooted that the symptoms are due to an excessive acidity in the gastric juice, but as I shall presently show there is no foundation in fact for this venerable fallacy.

These symptoms, so perfectly characteristic of duodenal ulcer, may be present for years without producing any physical signs. It is therefore not necessary to the attaining of an accurate diagnosis that any examination of the patient be made. The anamnesis is everything, the physical examination is nothing. There is, in the stage when the presence of the ulcer should be recognised, no single physical sign indicating the presence of organic disease. Signs which confirm the accuracy of the diagnosis may appear later, but there is no need to await their arrival before making, as we can make with the utmost confidence, an exact diagnosis.

In a rather later stage dilatation of the stomach with motor incompetence may appear. The stomach, that is to say, is unable to empty itself completely within the normal period of time. What would be considered a "normal period" is not agreed upon by all writers. I have arbitrarily adopted the period of 12 hours. If a stomach is not able to empty its contents into the duodenum within 12 hours it is very probable that there is organic disease which prevents it doing so. Gastric stasis, then, may be found in cases of duodenal ulcer; it is due always to the narrowing which occurs by reason of the healing, partial as a rule, but sometimes complete, of the ulcer or ulcers. I have never found that stasis of this degree was present as a result of pyloric spasm. It is possible that a spasm of the pylorus prevents the stomach from emptying as quickly as it otherwise would do, for the spasm no doubt exists because of the need for protection of the ulcer of the duodenum from the harm which contact with the acid chyme would inflict. The spasm is reflex and is protective, as was so beautifully shown by Cannon and Murphy.[3] But a spasmodic contraction of the muscle which guards the outlet does not prevent the stomach from emptying within the period of 12 hours. Its occurrence is probably protective also in the fact that it arouses symptoms the mere presence of which makes the patient less eager to take food in full quantities. Gastric stasis denotes, therefore, the existence of a narrowing in the duodenum due to organic disease. When this narrowing attains even a very moderate degree, a hypertrophy of the musculature of the stomach develops, as always happens in the alimentary canal; and the evidence of this may be found in the peristaltic waves visible when the stomach is examined. If the stomach is empty or only partially filled these muscular contractions may not be seen, but the administration of the two halves of a seidlitz powder separately will soon excite them.

In all cases of duodenal ulcer, indeed, in all cases of intractable stomach disorder, a test-meal should be given. There are a number, by no means inconsiderable, of patients who have been referred to me as cases of "hyperacidity," "acid gastritis," upon whom I have operated and have demonstrated the existence of a duodenal ulcer. Recurrent severe "hyperchlorhydria" *is* duodenal ulcer. The symptoms of which the patient makes complaint are ascribed to hyperacidity, but it is extremely interesting to know that it is usual for the gastric juice in such cases to be normal; there is no hyperacidity at all.

It is the rule in intractable cases of so-called "acid

[3] Annals of Surgery, 1906, 43, 512.

dyspepsia" for there to be no hyperacidity, and it is in my experience invariable to find duodenal ulcer in such cases No one is more sceptical than myself in interpreting the appearance of the stomach and duodenum during the course of an operation. I do not believe in the duodenal ulcer which I cannot demonstrate to the most sceptical assistant or onlooker. No "anæmic spots" or trivial, often imaginary, thickenings do I accept as being enough to account for protracted symptoms. The ulcer is always a visible, tangible, demonstrable lesion. And in a large experience I have never operated upon a case of protracted and recurrent "hyperchlorhydria" without finding a duodenal ulcer. In such cases it is rare to find any excess of acidity when a test-meal has been given.

A sign which sometimes appears early in the course of this disease, but which is more often a late symptom, is hæmorrhage. It is, of course, an evidence that the process of ulceration has extended to such a depth as to open up a large vessel, and so deep an invasion of the coats of the bowel is usually accomplished only after the lapse of months or of years. When bleeding occurs in quantity sufficient for it to be recognised as hæmatemesis it is evidence of the deep penetration of the walls of the duodenum by an ulcer whose existence should have been recognised long ago. Neither hæmatemesis nor melæna should be considered as among the usual signs of duodenal ulcer; they are both complications whose onset should have been forestalled; they are a witness to neglected opportunities.

The frequency with which bleeding occurs from a duodenal ulcer has been variously estimated by different authorities. Thus Kraus in the 70 cases collected by him found that in 20 free hæmorrhage had been observed. Oppenheimer in "over 100" cases found bleeding recorded in 34. In Perry and Shaw's series of 60 cases presenting symptoms in a total of 151 cases, hæmatemesis or melæna was present in 23. Nine patients had hæmatemesis, nine had melæna, and five had both hæmatemesis and melæna. In Nothnagel's Encyclopedia (p. 245) it is said that "severe hæmorrhage occurs in about one-third of cases." Fenwick estimates the frequency of hæmorrhage in acute cases at 26 per cent., or in chronic cases at 40 per cent.

All these figures seem to me to be valueless. They are compiled from statistics every item in which is open to disproof or doubt. The symptoms which characterise duodenal ulcer so unmistakeably were unknown to every one of these authorities; the frequency of the disease was therefore quite unappreciated. Only patients who suffered from such complications as stenosis, perforation, or hæmorrhage were known to suffer from an ulcer in the duodenum, and the verification of the diagnosis could only then be made upon the post-mortem table. In my own series of cases hæmorrhage has been noticed in over 30 per cent.

But with the new light which now has been shed upon this important subject by the work of the surgeon we have come to recognise that hæmorrhage is not a symptom but a late complication, that its onset is not to be awaited in order that a doubtful diagnosis may receive confirmation, but that its appearance is to be prevented by a timely recognition of the significance of the early symptoms. Hæmorrhage when it does occur may be manifest either as hæmatemesis or as melæna; the blood may be discharged in the vomit or in the fæces. Melæna may, and indeed usually does, exist without hæmatemesis, but when blood is vomited there is almost without exception some blood also in the stools.

I believe hæmorrhage from a duodenal ulcer to be a sign of grave significance of far more serious import than bleeding from a gastric ulcer. In the latter death very rarely occurs; in the former it is more frequent than is generally supposed. I have thrice had the experience of advising operation for duodenal ulcer in cases where hæmorrhage subsequently occurred and proved fatal before surgical help could be given. Hæmorrhage from a gastric ulcer is sometimes very copious and gives rise to great alarm, but when the bleeding ceases spontaneously the patient recovers quickly. In duodenal ulcer the bleeding causes faintness and anæmia, the exact origin of which may not be obvious till the bowels are moved. Then faintness and prostration come again and again, an abundance of blood, at first black, but later of a brighter hue, is passed, and the patient may rapidly become exsanguine and die.

The manner in which hæmorrhage appears varies much in different cases. As a rule, there is a considerable exacerbation in the symptoms before the bleeding comes; the "indigestion" is more acute, the feeling of distension or oppression after food is greater, and the patient himself does not feel so well. Then suddenly he feels weak and faint and breathless, the head feels light and swimming, and the sight seems quickly to grow dim. The patient looks white, his lips are bloodless, and sweat covers the brow; he asks constantly for air and is breathless; he displays, in brief, all the classical signs of an internal hæmorrhage. That this has occurred is presently made certain by the voiding of blood in the characteristic "tarry" motion or by the ejection of brighter blood in the vomit. In other cases the hæmorrhage may occur insidiously, without the patient having noticed it; he is aware only of a continuing weakness and frailty which he can hardly understand. A case in my own series was an exemplary instance of this. The man was sent to me because of a right inguinal hernia. As he entered my room I was struck with his blanched appearance, and my diagnosis of duodenal ulcer was made before he reached a chair. When I asked him to tell me his symptoms he had nothing to say but that he had a hernia. I asked if he had noticed any loss of blood; he replied in the negative. I inquired whether "indigestion" had been observed, and he said at once that he had "suffered from that for years" and that recently it had been very severe. I took the man into hospital, and found that he had melæna. I elicited then a perfectly clear history of duodenal ulcer. At the operation I found a large chronic ulcer for which I performed gastro-enterostomy. The case has been very successful.

It is probable that a certain degree of hæmorrhage occurs in many cases of duodenal ulcer without being recognised. The surface of the ulcer when fretted probably bleeds a little, and if the stools were carefully and regularly examined traces of occult blood would surely be found. I have in a few cases found this to be the case, but since I have realised how accurately the existence of an ulcer can be recognised from a study of the clinical symptoms alone I have not pursued this line of investigation closely. Occult blood, blood that is in quantities too small to be seen by the naked eye but capable of recognition by other tests, is therefore probably not very infrequent.

The vessels which are opened by the deep invasion of the walls of the bowel by the ulcer vary considerably in size; in proportion to their size the hæmorrhage is slight or abundant. The following are some of the larger vessels which have been eroded, with the result that fatal hæmorrhage has occurred: the aorta, the hepatic, gastro-duodenal, superior pancreatico-duodenal, right gastro-epiploic, and pyloric arteries; the portal and superior mesenteric veins. In a few cases hæmorrhage has been so sudden in onset and so profuse as to cause death which was almost sudden.

When the base of an ulcer from which fatal hæmorrhage has occurred comes to be examined the vessel involved is usually found to have thick and rigid walls. The opening from which the blood has come is at the side of the artery, which remains widely open. There is neither closure nor retraction of the vessel, whose walls, stiff as the stem of a clay pipe, seem incapable of contraction.

Such is a brief description of the characteristic symptoms of chronic duodenal ulcer. If a patient presents these symptoms the diagnosis of duodenal ulcer may confidently be entertained. There is no need for further evidence than that which is so afforded. I constantly operate upon the strength of the history alone, and as often do I demonstrate the existence of a chronic ulcer, a tangible and visible lesion, as the cause of the symptoms. Of nothing concerned with the relationship between altered structure and altered function am I so convinced as that symptoms such as I have portrayed owe their origin to, and are dependent for their perpetuation and their periodic repetition upon, a chronic duodenal ulcer.

Treatment.

In my opinion the treatment of a chronic duodenal ulcer should always be surgical. Chronicity in an ulcer is attested by the recurrence of attacks of a well-defined character. When a series of these attacks have occurred the ulcer is always to be plainly seen and demonstrated; and my experience in a long series of operations is that the conditions in the ulcer, as a rule, are such that nothing but surgical treatment could possibly avail. The ulcer is so large, or so indurated, or the

ulcers are so numerous that even if the lesions were to cicatrise completely one of two things would result: either a hard fibrous surface, readily breaking down under provocation, would remain, or a stenosis of the bowel would inevitably follow.

But the question at once arises as to when the case is first to be recognised as surgical, as to when we are entitled to say that medical treatment will probably prove to be of little or no permanent value. What are the conditions present in the duodenum in the first of all the "attacks"? I have at present no adequate means of knowing. I have only once operated in or after a first attack, and so have little evidence upon the point. In this case the pathologist reported that a small fibrous scar was present in the small piece of the duodenum which I had excised. I was myself very doubtful whether an ulcer had been present. I have once operated at the close of a second attack, the patient being referred to me by my colleague, Dr. T. Wardrop Griffith. An ulcer about a quarter of an inch in diameter on the anterior surface of the duodenum was excised. The ulcer was clean, with terraced margins, indurated, and it had destroyed the whole of the muscular coat of the bowel. Though the attack had passed away completely the ulcer was still open and unhealed. In subsequent attacks the ulcer is always to be seen and possesses the characteristic appearance. An ulcer which has caused recurrent attacks has always involved the serous coat, and is accordingly easily to be seen from without.

It is only when attacks recur that a diagnosis of chronic duodenal ulcer can confidently be made; it is only when this diagnosis can be made that surgical treatment is necessary. In a first attack, or even in a second, medical treatment may be tried. But I believe it to be true to say that the significance of the symptoms in these attacks has never yet been fully recognised by the physician. It has not been realised that these symptoms are due to a structural lesion, and consequently (after a diagnosis of "acid gastritis" or "neurosis") treatment has been perfunctory and brief. Up to the present time it is, with the exception of the single case I have mentioned, only after repeated attacks, sustained often over a period of years, that the surgical needs of the case have been recognised. If the first of the attacks be due to a duodenal ulcer, then medical treatment of a sufficiently protracted and careful character should be tried. But when attacks occur in the typical manner I have described the lesion found is of such a nature that anything other than surgical treatment is not worth considering. It is safer, speedier, and more certain than any other mode of treatment.

The surgical treatment of duodenal ulcer may be carried out by (1) excision of the ulcer and restoration of the duodenal canal; (2) excision of a cylinder of the duodenum by closure of the distal end and union of the pyloric cut end with the side of the second portion of the duodenum; (3) partial resection of the duodenum, followed by closure of both cut ends, and gastro-enterostomy; and (4) gastro-enterostomy.

As the cases are seen now the performance of gastro-enterostomy is almost always necessary. The conditions of the ulcer are such that a restoration of the duodenum to its normal state is impossible, and all that can safely be done is to afford a new outlet from the stomach. It is now my invariable practice to infold the ulcer, in precisely the same manner as if a perforation had occurred. This allows the ulcer to heal more speedily, as it ensures that almost no food passes through the pylorus.

Leeds.

WORTHING HOSPITAL: NEW OPHTHALMIC DEPARTMENT.—The governors of Worthing Hospital at a meeting last month confirmed the recommendation of a subcommittee that an ophthalmic department should be established. No addition to the existing buildings will be needed, but a room is to be adapted for the work. A new rule was passed increasing the number of medical officers to eight, one to be specially appointed to attend to the work of the ophthalmic department. The need of such a department has been felt for a long time at Worthing, and the medical inspection of school children in the borough has assisted to bring about the consummation earlier perhaps than otherwise would have been the case. Urgent cases from Worthing have hitherto received treatment either at Brighton or Chichester.

THE COMBINED MERCURIAL AND ARYLARSONATE TREATMENT OF SYPHILIS.

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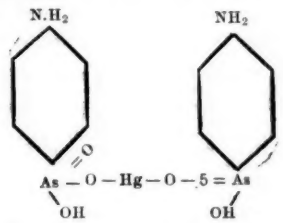
WHATEVER the future may reveal as regards the specific effects of the arylarsonates in the later phases of syphilis, there can no longer be any doubt as to their value in the earlier stages of the disease, capable as they are of causing the spirochæta pallida to disappear and to delay, dissipate, and modify the early secondaries.

When these arsenical compounds were first introduced into the treatment of syphilis it was considered dangerous to give them simultaneously with mercury on the ground that the latter dissociated them, which would result in toxic effects being produced. At the Military Hospital, Rochester Row, our custom used to be to allow a period of at least a fortnight to elapse between the cessation of one and the beginning of the other; this was my teaching, which I stated in a paper on the subject read at the Sheffield meeting of the British Medical Association in 1908. The cases in which I first tried the combined treatment were some which, whilst resisting all treatment by either arsenic or mercury alone, rapidly responded when the two were employed together—i.e., the weekly injection of either metallic mercury or calomel being given at the same time as one of the arylarsonate compounds was being administered. In none of these cases did I find toxic effects, all syphilitic lesions clearing up rapidly under this system. So successful were these cases that I began to employ this method more freely, and it was not long before I saw that all cases of syphilis did better when the two drugs were employed simultaneously than when alone. This fact I stated in a paper which I read at the annual meeting at Belfast this year.

Since then I have become absolutely convinced of the benefit to be derived from this combination method. Instead of giving the ordinary mercurial injection I have been using a preparation of atoxyl and mercury made for me by Messrs. Greeff of Charlottenburg, Germany, the manufacturers of the original atoxyl; this they have named "atoxylate of mercury," and they describe it as being the acid mercury salt of atoxylic acid, and as having the following chemical constitution:—



It contains 23·7 per cent. arsenic and 31·8 per cent. mercury. It is a white powder, practically insoluble in water, which contains no water of crystallisation, and shows a slightly pinkish tinge when heated to 100° C. Its solutions do not precipitate albumin, as is usual with other mercury compounds.

I have been using this preparation very extensively since last July with much success, whilst Lessar reports very favourably on it in Germany. It is given intramuscularly and in suspension in either olive oil or liquid paraffin, or, better still, in the vehicle which I use in all my mercurial creams—creasote, camphoric acid, and palmitin. The dosage I have had to work out by observation. My custom now is to give of the following:—

Hydr. atoxyl, 3i; vehicle, 3ix.

	1st injection,	mvii. =	½ grain.
After three days,	2nd ,,	mvii. =	,, ,,
,, ,, ,,	3rd ,,	mxii. =	1½ ,,
,, seven ,,	4th ,,	mxii. =	,, ,,

And so on until eight injections have been given. One month's rest, and then repeat above course. Up to the present I have not had one case showing the slightest toxic

effects, and all have benefited much from it. Under it all active symptoms clear up in a marvellous way, even more rapidly than when calomel is used.

The following are some of the cases treated by me at the Military Hospital, Rochester Row, by atoxylate of mercury. As will be seen, they were all well-marked cases of syphilis, mostly in the earlier stages. Case 28 was one of peculiar interest. The atoxylate of mercury is given by intramuscular injection, and should not be given subcutaneously.

CASE 1.—Police-constable, Metropolitan Police. Oct. 10th, 1909: Admitted to-day; has been ill for three weeks. Sub-preputial hard chancre; deep glands in groin and neck indolently enlarged; papular eruption in back and thigh; ulcerated throat, anæmia, and cachectic; some pustules in back. Has had two injections at the Lock Hospital of gray oil. 15th: ¾ gr. of atoxylate of mercury. 20th: ¾ gr. of atoxylate; positive reaction. 22nd: 1½ grs. of atoxylate. Much improved, rash almost disappeared, pustules dried up. 29th: 1½ grs. of atoxylate. Wonderfully improved; gives positive reaction with Wassermann's test; rash almost disappeared, throat healed, pustules dried up. Nov. 5th: 1½ grs. of atoxylate of mercury. 12th: 1½ grs. of atoxylate. Induration at primary site nearly gone.

CASE 2.—Private, 2nd Scots Guards. Oct. 21st, 1909: Weight, 11 stones 12 pounds. Placed on register on August 24th, 1909; treated mostly by orsudan and soamin. ¾ gr. of atoxylate of mercury. 19th: Positive reaction. 22nd: ¾ gr. of atoxylate. 29th: 1½ grs. of atoxylate. Nov. 6th: Weight, 12 stones 13 pounds. 1½ grs. of atoxylate. Discharged from hospital and proceeded to Windsor in apparently good health. 14th: 1½ grs. of atoxylate of mercury.

CASE 3.—Private, 2nd Grenadier Guards. Oct. 1st, 1909: Weight, 11 stones. Indurated sore on penis, roseolar eruptions on back and chest, lymphatic glands in groin and neck enlarged, ulcerated throat; positive reaction with Wassermann's test. Has had 1½ grs. of atoxylate of mercury up to present; all active symptoms disappeared. 5th: Discharged from hospital to attend; 1½ grs. of atoxylate. 9th, 15th, 29th: On each date 1½ grs. of atoxylate. Nov. 6th: Weight, 11 stones 3 pounds. Completed course of atoxylate of mercury. One month's interval of rest from treatment.

CASE 4.—Private, 2nd Coldstream Guards. Oct. 20th, 1909: Placed on register on the 1st. Indurated sore at urinary meatus; roseolar rash. Has had four atoxylate injections; both induration and rash have disappeared. 1st: Weight, 9 stones 13 pounds. Positive reaction with Wassermann's test. 5th: Weight, 9 stones 13 pounds. 1½ grs. of atoxylate of mercury. 9th: Weight, 10 stones. 1½ grs. of atoxylate. 22nd: Discharged from hospital to-day apparently well. 1½ grs. of atoxylate of mercury.

CASE 5.—Private, 3rd Grenadier Guards. Spirochæta found in sore. Oct. 24th, 1909: Admitted to-day. Indurated sore on prepuce, papular eruption on scrotum and scalp, roseolar mottling all over trunk; lymphatic glands in groin and mastoid region enlarged; nocturnal headaches. ¾ gr. of atoxylate of mercury. 29th: ¾ gr. of atoxylate. 5th: 1½ grs.; rash disappeared. 17th: 1½ grs.; much better. 25th: 1½ grs.; all active symptoms disappeared.

CASE 6.—Private, 2nd Scots Guards. Positive reaction with Wassermann's test. Sept. 16th, 1909: Weight, 11 stones 12 pounds. States contracted a sore on penis on Feb. 2nd, 1909, for which he had no treatment. Present condition: Scar (indurated) on prepuce; general glandular hardening; roseolar and macular eruption on body; alopecia. Has, he states, never been in hospital, nor has had any treatment up to date. Condylomata; some papules on back and chest. 17th: Weight, 11 stones 12 pounds. ¾ gr. of atoxylate of mercury. 22nd: Repeated atoxylate ¾ gr. 24th: 1½ grs. of atoxylate. All signs and symptoms disappeared. Discharged to attend weekly. Oct. 1st: Transferred to Windsor.

CASE 7.—Private, 1st Irish Guards. Spirochæta pallida found in sore. Sept. 13th, 1909: Weight, 12 stones 9 pounds. Been under treatment in hospital for gonorrhœa and developed a sore on prepuce, which has become markedly indurated. Inguinal and cervical glands enlarged indolently; roseolar rash on back. Gave him ¾ gr. of atoxylate of mercury to-day. 17th: Repeated injection of ¾ gr. of atoxylate. 24th: 1½ grs. of atoxylate. Oct. 1st: Weight, 12 stones 7 pounds. No toxic signs; all symptoms disappeared; 1½ grs. of atoxylate to-day. 9th: Weight, 12 stones 13 pounds. 1½ grs. of atoxylate. Discharged from hospital for Aldershot apparently well.

CASE 8.—Private, 1st Scots Guards. Spirochæta pallida found in sore. Sept. 13th, 1909: Weight, 11 stones 5 pounds. Well-marked indurated sore on prepuce; glands in groin and neck nodulated; dullish red rash scattered over trunk. Has had five injections of soamin (50 grs.). To-day received ¾ gr. of atoxylate of mercury. 17th: Repeated injection ¾ gr. of atoxylate. 24th: Gave 1½ grs. of atoxylate Oct. 1st: Weight, 11 stones 7 pounds. No toxic signs; all symptoms disappeared. 1½ grs. of atoxylate to-day. 2nd: Weight, 11 stones 7 pounds. Went to Aldershot for duty.

CASE 9.—Private, 2nd Coldstream Guards. Spirochæta found; positive reaction to Wassermann's test. Sept. 13th, 1909: Weight, 12 stones. Has been in hospital for some time. Has two hard chancres at base of penis, and one on glans penis, general glandular adenitis, and is covered with a roseolar rash. Has had five injections of soamin (50 grs.). To-day gave him ¾ gr. of atoxylate of mercury by injection. 17th: Repeated injection ¾ gr. of atoxylate. 24th: Gave 1½ grs. of atoxylate. Oct. 1st: Weight, 11 stones 13 pounds. All signs disappeared; no toxic symptoms. 1½ grs. of atoxylate to-day. Discharged to Army Reserve.

CASE 10.—Police constable, Metropolitan Police. Oct. 26th, 1909: Placed on register on August 18th, 1909, and had course of six injections of metallic mercury. Came for inspection to-day and found to be suffering from a deep ulcer of side of tongue. Gave him ¾ gr. of atoxylate of mercury. Nov. 6th: Ulcer of tongue and all active symptoms disappeared; discharged to attend. 1½ grs. of atoxylate. 12th: Received 1½ grs. of atoxylate. 18th: 1½ grs. of atoxylate.

CASE 11.—Private, 2nd Scots Guards. Nov. 2nd, 1909: Weight, 12 stones. Two indurated sores on prepuce, papular eruption on body, lymphatic glands in groins and neck enlarged. ¾ gr. of atoxylate of mercury. 5th: ¾ gr. of atoxylate; sores healing, rash less. 12th: 1½ grs. of atoxylate. Primary induration healed, chancre healed, rash disappeared. 19th: 1½ grs. of atoxylate to-day. Discharged from hospital.

CASE 12.—In the Grenadier Guards. Sept. 8th, 1909: Weight, 9 stones 6 pounds. Came sick to-day and admitted with hard sore under prepuce, general adenitis, and is covered in a roseolar rash. Received ¾ gr. of atoxylate of mercury to-day. 13th: Repeated injection. 17th: Has had no toxic signs. 1½ grs. of atoxylate. 24th: Gave 1½ grs. of atoxylate. Positive reaction to Wassermann's test. Oct. 1st: Weight, 9 stones 2 pounds. No positive symptoms, sore almost healed, rash disappeared. 1½ grs. of atoxylate. Discharged to duty. 8th, 15th, and 22nd: On each of these dates 1½ grs. of atoxylate. Finished first course; apparently quite well.

CASE 13.—Private, 2nd Grenadier Guards. Sept. 9th, 1909: Weight, 10 stones 6 pounds. Had been in hospital for some three weeks and was operated on (circumcision). Developed induration round corona glandis, general adenitis, roseolar rash on body. ¾ gr. of atoxylate of mercury to-day. 10th: Had some diarrhœa yesterday, but is all right this morning. ¾ gr. of atoxylate of mercury. 13th: 1½ grs. of atoxylate. Rash fading fast, no toxic signs. 24th: Weight, 10 stones 7 pounds. Gave 1½ grs. of atoxylate of mercury. Oct. 1st: Weight, 10 stones 11 pounds. 1½ gr. atoxylate of mercury. No toxic symptoms, all syphilitic symptoms disappeared. Discharged from hospital to attend weekly. 8th, 15th, and 21st: On each date 1½ grs. of atoxylate. Finished first course.

CASE 14.—Private, depôt Coldstream Guards. Sept. 8th, 1909: Weight, 10 stones 5 pounds. Admitted to-day from M.H., Caterham. Hard sore on prepuce, general adenitis, and is covered with macular rash. Began course of arylarsonate of mercury, giving ¾ gr. 10th: No toxic effects. Repeated injection of ¾ gr. of atoxylate of mercury. 17th: No toxic effects. 1½ gr. of atoxylate of mercury. 24th: Weight, 10 stones 6 pounds. Gave 1½ grs. of atoxylate of mercury. Discharged the army under three months' rule. Apparently quite well.

CASE 15.—Patient in the 2nd Scots Guards. Discharged from Connaught Hospital, Aldershot, on August 29th, 1909, where he had been under treatment for three weeks for a soft chancre. Sept. 9th: Weight, 10 stones 10 pounds. Now has an indurated sore on prepuce; adenitis of glands in groin and neck, covered in roseolar eruption. To have course of atoxylate of mercury. Gave ¾ gr. to-day. 13th: Repeated injection of ¾ gr. 16th: No ill effects; much improved; rash faded. 1½ grs. of atoxylate of mercury. 24th: Gave 1½ grs. of atoxylate. Oct. 1st: Weight, 10 stones 11 pounds. Roseolar eruption disappeared. 1½ grs. of atoxylate: no toxic symptoms; positive reaction with Wassermann's test. 8th: 1½ grs. of atoxylate; much better. 15th: 1½ grs. of atoxylate; all symptoms disappeared. 20th: 1½ grs. of atoxylate. Discharged and proceeds to Windsor, apparently well.

CASE 16.—Boy, 1st Norfolk Regiment. Positive reaction with Wassermann's test. Sept. 17th, 1909: Weight, 7 stones 10 pounds. Acquired a hard chancre about three months ago; has been under treatment more or less since then, first of all under soamin, of which he has had 100 grs. Then received four injections of metallic mercury. Present condition: scar of hard sore on prepuce. General glandular enlargements, large flat papules on chest, abdomen, and back, also on forehead. 20th: To-day got ¾ gr. of atoxylate of mercury. No toxic effects whatsoever. The papules decidedly fainter. Positive reaction to Wassermann's test. 24th: Weight, 7 stones 6 pounds. Improving fast. Gave 1½ grs. of atoxylate of mercury. Oct. 1st: Weight, 7 stones 6 pounds. No toxic signs, much improved. 1½ grs. of atoxylate to-day. 15th: Rash disappeared. 1½ grs. of atoxylate to-day. Some albumin in urine. 22nd: Albuminuria continues, consequently no injection to-day. All rash and other active symptoms subsided.

CASE 17.—In the Army Service Corps. Sept. 20th, 1909: Weight, 11 stones 1 pound. Admitted on the 14th. Large induration under prepuce; enlargement of lymphatic ganglia in groins, neck, and on mastoid process; macular eruption on back and chest. Nocturnal headaches; hair of head shedding; cachexia. Had one ¾ gr. injection of calomel on Sept. 15th. To-day gave ¾ gr. injection of atoxylate of mercury. 24th: Induration much softer. Spirochæta pallida found. Gave injection of 1½ grs. Positive reaction to Wassermann's test. Oct. 1st: Weight, 11 stones. No toxic symptoms; rash entirely disappeared. 1½ grs. of atoxylate to-day. 8th, 15th, and 22nd: On each date 1½ grs. of atoxylate were given. Discharged to duty. Finished first course.

CASE 18.—Patient in the 2nd Scots Guards. Sept. 22nd, 1909: Weight, 12 stones 1 pound. Positive reaction with Wassermann's test; has been on the syphilis register from Sept. 16th, 1908, and under treatment by metallic mercury injection. Present condition: Ulceration on top of tongue and lip. Got first injection of ¾ gr. of atoxylate of mercury on Sept. 17th, which was repeated on the 21st; marked improvement. 29th: Received 1½ grs. of atoxylate. All symptoms disappeared. Left London for Windsor. Oct. 5th: 1½ grs. atoxylate of mercury. 12th: 1½ grs. of atoxylate. Apparently well. Injections ceased owing to patient leaving London.

CASE 19.—Private, 2nd Scots Guards. Sept. 22nd, 1909: Weight, 12 stones. Positive reaction with Wassermann's test. Been on syphilis register for past two years and under treatment by metallic mercury most of the time. Present condition: Ulcer on lip and mucous patches on tongue. Received first injection on Sept. 13th of ¾ gr. of atoxylate of mercury and repeated on 17th. No toxic symptoms and much improved. 28th: Weight, 12 stones. Gave 1½ grs. of atoxylate of mercury. Left London for Windsor. All signs gone. Oct. 5th: 1½ grs. of atoxylate of mercury. All signs of tongue lesion absolutely disappeared.

CASE 20.—Private, 2nd Dragoon Guards. Sept. 22nd, 1909: Weight, 10 stones 7 pounds. Probable date of infection two weeks ago. Present condition: Hard subpreputial sore on penis; spirochæta pallida discovered in it; general glandular enlargements; maculo-papular eruption on chest, body, and limbs. Gave ¾ gr. of atoxylate of mercury. 24th: Repeated injection. Positive reaction to Wassermann's test. 28th: Weight, 10 stones 7 pounds. 1½ grs. atoxylate. Oct. 8th: 1½ grs. repeated. 15th: 1½ grs. All signs disappeared. 22nd: 1½ grs. Discharged from hospital to-day; finished course.

CASE 21.—In the A. S. Corps. Positive reaction with Wassermann's test. Oct. 8th, 1909: admitted to-day. Hard chancre of penis; deep glands in groin; occiput and mastoid regions indolently enlarged, covered with roseolar rash; mucous tubercles on tongue, ulcerated throat, condylomata, alopecia, nocturnal headaches, anæmia and cachexia. Has evidently been concealing his disease, which is of at least

six months' standing. Has had no specific treatment up to date. 11th: Received ⅔ gr. of atoxylate of mercury to-day. 15th: 1½ grs. of atoxylate. Symptoms disappearing rapidly. 22nd: Weight, 8 stones 13 pounds. 1½ grs. of atoxylate. All induration disappeared; mucous patches on tongue and condylomata cleared up. Positive reaction to Wassermann's test. 29th: 1½ grs. of atoxylate. Nov. 3rd: Weight, 8 stones 12 pounds. Discharged from hospital; all active signs quite disappeared. To attend.

CASE 22.—Police constable, Metropolitan Police. Sept. 30th, 1909: Weight, 12 stones 3 pounds. Contracted sore on penis about five months ago. Has had a very doubtful course of specific treatment. Condition: Ganglia in groin and neck indolently enlarged, covered with papular eruption. Rupial ulcers in scalp, suppurating gland in side of neck. Positive reaction to Wassermann's test. Oct. 1st: Weight, 12 stones 3 pounds. ⅔ gr. of atoxylate of mercury to-day. 6th: ⅔ gr. of atoxylate. No toxic effects. 15th: 1½ grs.; much improved. 22nd: Weight, 12 stones 2 pounds. 1½ grs. of atoxylate; induration disappeared. Rupial sores on head entirely healed, suppurating gland in neck healed. Nov. 6th: Weight, 12 stones 3 pounds. Completed course. Discharged hospital; one month's rest.

CASE 23.—Police constable, Metropolitan Police. Oct. 2nd, 1909: Weight, 11 stones 11 pounds. Hard sore under prepuce, glands in groin and neck indolently enlarged, maculo-papular eruption profusely scattered over body, nocturnal headaches, roseola on muscles and calves. ⅔ gr. of atoxylate of mercury. Positive reaction; spirochæta pallida found in primary sore. 5th: ⅔ gr. of atoxylate to-day. For nocturnal headaches given 5 grs. of pot. iodi. t.d.s. 10th: 1½ grs. of atoxylate. Rash fading. 15th: 1½ grs. atoxylate. 22nd: Ditto. Rash fading. 29th: 1½ grs. of atoxylate. All active symptoms disappeared. Discharged from hospital. Nov. 5th: 1½ grs. of atoxylate of mercury. Finished course.

CASE 24.—Patient in the 2nd Coldstream Guards. Oct. 2nd, 1909: Weight, 11 stones 6 pounds. Hard sore on prepuce, other subpreputial, spirochæta pallida found. Glandular enlargements, roseolar rash over body. ⅔ gr. of atoxylate to-day. Positive reaction. 5th: ⅔ gr. of atoxylate to-day. 8th: 1½ grs. of atoxylate. 15th: Weight, 10 stones 10 pounds. 1½ grs. of atoxylate. Rash entirely disappeared. Sore almost healed, induration much less. 22nd: Weight, 11 stones 11 pounds. 1½ grs. of atoxylate. All active symptoms cleared up. Discharged from hospital. Oct. 29th: 1½ grs. of atoxylate of mercury. Nov. 5th: Ditto. Finished course.

CASE 25.—Private, 2nd Coldstream Guards. Positive reaction to Wassermann's test. Oct. 5th, 1909: Hard cicatrix on corona glandis; admitted having had a sore there about five weeks ago; deep inguinal glands enlarged, roseolar rash on back and chest, nocturnal headaches, and ulcerated throat. ⅔ gr. of atoxylate of mercury to-day. 8th: ⅔ gr. atoxylate. 15th: 1½ grs. of atoxylate. All symptoms cleared up. Discharged to attend. 22nd: 1½ grs. atoxylate. No active symptoms. Positive reaction. 29th: 1½ grs. of atoxylate of mercury. Nov. 5th: Ditto. 12th: Ditto. Finished course.

CASE 26.—Patient in the 2nd Scots Guards. Positive reaction to Wassermann's test. Oct. 6th, 1909: Weight, 10 stones 10 pounds. Transferred from Windsor with venereal sore. Large eroding ulcer on surface of prepuce, hard edges, spirochæta pallida found in sore. Deep glands in groin and neck enlarged; maculo-papular eruption in body. ⅔ gr. of atoxylate of mercury. 9th: ⅔ gr. repeated. Positive reaction. 15th: Weight, 10 stones 9 pounds. 1½ grs. of atoxylate. Much improved. 22nd: Weight, 10 stones 10 pounds. 1½ grs. of atoxylate. Gained 4 pounds in weight. 29th: 1½ grs. of atoxylate of mercury. All signs disappeared. Nov. 5th: 1½ grs. repeated. Discharged from hospital. 12th: 1½ grs. Finished course of atoxylate.

CASE 27.—Private, 2nd Scots Guards. Positive reaction to Wassermann's test. Oct. 6th, 1909: Weight, 13 stones. Transferred from Windsor. Superficial erosion on glans penis with hard edges; glands in neck and groins indolently enlarged, covered with roseolar eruption (erythema). ⅔ gr. of atoxylate of mercury to-day. 9th: Weight, 12 stones 6 pounds. ⅔ gr. of atoxylate. 15th: 1½ grs. of atoxylate; sore healed; rash disappeared. 22nd: 1½ grs. of atoxylate. 29th: 1½ grs. of atoxylate. All active symptoms disappeared. Discharged to Windsor.

CASE 28.—In the Grenadier Guards. Positive reaction to Wassermann's test. Oct. 7th, 1909: An old case of some eight years' standing, for the last five of which he has been much troubled with his tongue. Has had thorough antisyphilitic treatment both with mercury and soamin. Present condition: Tongue hard and thickened and there are deep cracks and jagged fissures on its surface; on the dorsum of the tongue and inside of cheeks are large patches of leucoplasia. Mucous membrane of larynx thickened and reddened; aphonia. Blood gives undoubted "positive reaction" with Wassermann's test. Had ⅔ gr. of atoxylate of mercury to-day. 10th: Repeated ⅔ gr. Slight improvement in tongue. 16th: 1½ grs. of atoxylate. Decided improvement. 23rd: 1½ grs. of atoxylate. 29th: Repeated 1½ grs. of atoxylate. Great improvement in condition of tongue, which has considerably softened; fissures healing. Nov. 5th: 1½ grs. of atoxylate of mercury. Marvellous progress; says the tongue is better than it has been for last five years. 12th: 1½ grs. atoxylate of mercury. Tongue almost normal; voice returned. 26th: 1½ grs. of atoxylate of mercury. Condition of tongue practically cured. Patches of leucoplasia disappeared. Finished first course. To have one month's rest from further injections.

CASE 29.—Private, 2nd Grenadier Guards. Positive reaction with Wassermann's test. Oct. 11th, 1909: Weight, 11 stones. On register since January, 1909. He has had six injections of metallic mercury. Saw him to-day; is suffering from sclerotic glossitis with deep fissures and cracks. Received ⅔ gr. of atoxylate on Oct. 8th. 22nd: Since last injection his gums have been sore, so have not repeated it up to date. Nov. 2nd: Gums much better; has had copper sulphate applied to roots of teeth. Deferred further injection to Nov. 5th. 6th: ⅔ gr. of atoxylate of mercury. 12th: 1½ grs. of atoxylate of mercury. Tongue wonderfully improved, all hardening disappeared, fissures healed. Discharged from hospital. 26th: 1½ grs. of atoxylate of mercury. Tongue quite healed.

CASE 30.—In the 2nd Coldstream Guards. Nov. 2nd, 1909: Weight, 11 stones 5 pounds. Hard sore on prepuce; roseolar rash all over body; lymphatic glands in groin, neck, and the mastoid enlarged. Received atoxylate of mercury ⅔ gr. 5th: Atoxylate repeated. All active symptoms disappeared. Discharged to attend. 12th: 1½ grs. of atoxylate of mercury.

Military Hospital, Rochester Row.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF CHRONIC SUPPURATIVE OTITIS MEDIA WITH LABYRINTHINE FISTULA AND SPONTANEOUS NYSTAGMUS.

BY LINDLEY SEWELL, M.B., B.S. LOND., M.R.C.S. ENG.,
HONORARY ASSISTANT SURGEON TO THE MANCHESTER EAR HOSPITAL.

THE patient, a little girl, aged 6 years, was admitted into the Manchester Ear Hospital under my care with the history that she had had a discharging ear for four years dating from an attack of measles. Eight days before admission she began to suffer from headache, occasional vomiting, and dizziness. On examination a perforation, through which protruded a small amount of granulation tissue, was seen in the posterior superior quadrant of the right tympanic membrane; the pus in the meatus was very foul and mixed with a large amount of desquamated epithelium. There was no swelling or tenderness over the mastoid area. The child had an unsteady gait, stumbling to the right, although sometimes by over-correction she fell to the left. She was unable to stand upright with feet together and eyes closed; she invariably fell to the right. She had spontaneous horizontal nystagmus directed to the left, which was most marked on extreme deviation of the eyes to the left, and much less marked, although it did not quite disappear, on extreme deviation of the eyes to the right. On syringing out the right ear with cold water the nystagmus already present was much increased in intensity. By compression of the air in the meatus by means of a small Politzer's bag fitted to it a nystagmus was produced directed to the right side; by rarefaction there was no apparent increase in the left nystagmus which was already present. With the left ear stopped she heard the spoken voice at about 4 feet. It was difficult to draw any conclusions from tuning-fork tests, as the child's answers varied, but apparently there was little or no impairment in the auditory perceptive apparatus. There were no optic neuritis and no squint. The pulse was 84, and the temperature varied between 97° and 98·6° F.

A provisional diagnosis of labyrinthine fistula secondary to chronic suppurative otitis was made and a radical mastoid exenteration was performed without delay. A large part of the temporal bone was found to be destroyed and hollowed out and filled with a foul-smelling cholesteatoma. A tiny fistula, which was not curetted or enlarged, was seen leading into the external horizontal semicircular canal; the stapes was found to be *in situ* and was also left undisturbed. The patient made an uninterrupted recovery, vomiting ceased, the dizziness disappeared, and in three weeks she was able to walk steadily; the nystagmus diminished in intensity more slowly, and three months later was present to a slight degree on deviation of the eyes to the left.

The case is of interest in so far as it illustrates the practical value of Bárány's vestibular tests, as an aid to diagnosis. The active response to the caloric test (syringing with cold water) showed that the vestibular apparatus was still functional; an important point to determine, since in early cases of labyrinthitis the nystagmus is generally directed to the diseased side, and only as the vestibular apparatus becomes more and more destroyed changes its direction to the sound side. In this case the nystagmus was directed away from the diseased side. The active response of the "pressure test" pointed to a breach in the labyrinthine wall, and this fact, combined with a vestibular apparatus still functional, led to the diagnosis of "circumscribed labyrinthitis." With regard to the treatment of such a condition, I believe it is the best practice to be content at first with a wide radical mastoid operation, and then to keep the case under careful observation, and only interfere with the labyrinth if rapid improvement does not ensue.

Manchester.

CONGENITAL BLENNORRHŒA OF THE LACRYMAL SAC.

BY S. G. CORNER, M.A., M.B., CH.B. EDIN.,
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A CASE of this somewhat rare condition, about which the text-books say so little, seems worthy of record. It occurred in a female child at whose birth I was present in November, 1909. The appearance the child presented immediately after birth was as if the bridge of the nose was sunken. On closer examination, however, it was seen that this was really due to swelling of both lacrymal sacs. On the second day the swellings increased. On the third day the sacs were considerably distended, the skin over them being of purplish hue. There was a discharge of muco-purulent material through the canaliculi into the eyes, but more so in the case of the left eye, where the swelling of the tear sac was more prominent. Pressure over the distended tear sacs produced increased regurgitation of muco-pus into the eyes. On the fifth day the left eye was constantly bathed in discharge, in spite of the fact that the nurse kept washing it away with boric lotion.

Fearing that the conjunctiva would suffer if matters were left alone, I decided to incise the sac of the left side. After spraying on ethyl chloride an incision was made over the most prominent part of the swelling and an ordinary probe was passed in, but not passed down the nasal duct. The discharge into the eye immediately ceased, and in two days, with the help of boric fomentations, the swelling had entirely subsided. As there was but little discharge into the right eye the nurse was directed to press the tumour on that side downwards in the direction of the nasal duct. This treatment was effective, for in three days the bulging of the right tear sac had disappeared.

This child is the second one the mother has given birth to; the eyes of the first-born, also a girl, had shown no abnormality at birth.

In a recent article on congenital blennorrhœa of the lacrymal sac Mr. J. R. Foster of Hartlepool states that he considers the condition to be due to obstruction of the nasal duct, "most probably where it opens into the inferior meatus of the nose." Writing about inflammation of the tear sac, Berry says that "as the mucous membrane of the sac swells its lower orifice or passage into the tear duct becomes narrowed or closed, partly by the approximation of the swollen folds of the membrane which are met with in this situation, and partly, no doubt, by the increased mucoid secretion from the swollen surface." Evidently Berry considers that the duct may be blocked by accumulation in the sac itself, which is the dilated upper end of the duct.

In the case above recorded there was evidently no stricture of the nasal duct at its lower end, because, in the case of the left eye, the condition was relieved at once by the incision into the sac and relief of tension, and in the case of the right sac pressure downwards in the direction of the nasal duct sufficed to empty the sac by expressing the contents into the nasal duct.

Coggeshall, Essex.

A NOTE ON A CASE OF MONGOLIAN IMBECILITY.

BY J. P. CULLEN, M.B. LOND., M.R.C.S. ENG., D.P.H.

THE following notes on a case of Mongolian imbecility recently under my observation may be of interest as exemplifying certain factors in the etiology of this affection.

The patient was a boy, aged 8 years. The family history was significant. The mother, aged 43 years, had been married for 20 years, and during that time had had seven children, two dying in early infancy, five being alive at the date of examination. In addition she had had four miscarriages, two of these between the third and fourth children, one between the fifth and sixth, and one prior to the birth of the patient, who was the seventh and last child of the series. No specific history was elicited from the mother, and no signs of congenital disease were observed on other members of the family. A history of alcohol was obtained from both the father and the mother.

The patient himself was a typical Mongol, showing a brachycephalic head with antero-posterior and transverse diameters both 12·5 inches, obliquely set eyes, depressed bridge of nose, furrowed tongue, and curvature of the little fingers of both hands. He was backward at school and could not learn, but exhibited none of the dull apathy of a cretin, his facial aspect being more alert.

The case lends support to the theory that such imbeciles are exhaustion products depending mainly on advanced maternal age and frequent child-bearing, but also due to other toxic influences of which alcohol may be one.

Plymouth.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Abdominal Hysterectomy.—Cyst of the Broad Ligament.

A MEETING of this section was held on Dec. 9th, 1909, Dr. H. MACNAUGHTON-JONES, the President, being in the chair.

Dr. PHILIP D. TURNER (Ryde) read a paper on Abdominal Hysterectomy 63 hours After Labour for a Necrosed and Suppurating Subperitoneal Fibroid. The patient was a nullipara, aged 32 years, and had been married 13 months. She consulted Dr. Turner on March 22nd, 1909, on account of a hard lump which she had noticed in the left side of her abdomen for about a fortnight. Her last menstrual period ended on Jan. 18th. A firm, elongated, freely moveable tumour was found lying on the left side of, and attached to, the uterus, which was about two months pregnant. He considered it to be a pedunculated fibroid, and took her into hospital with the intention of removing it. On April 8th he opened the abdomen, and found that the fibroid was attached to the uterus by a very broad base and could not be removed without terminating the pregnancy. He therefore decided to let the case go on to term and perform a myomectomy afterwards. Labour commenced on Oct. 26th, but full dilatation was only reached on the 29th. The second stage was short and, towards the end, precipitate. The child, a boy, was born with a very long cord three times round its neck. There was rather sharp post-partum hæmorrhage, and the placenta and membranes had to be stripped off. In doing this a very small intramural fibroid was felt in the anterior wall and a somewhat larger submucous one near the right cornu. On the morning of Nov. 1st (the third day) the patient was looking ill and anxious. The whole abdomen was somewhat tender, the temperature was 100·2° F., and the pulse-rate was 126. From the steady and progressive rise in the pulse-rate, combined with the increasing pain and tenderness over the tumour, it was concluded that the fibroid was sloughing, and immediate operation was advised. The uterus was accordingly removed by Doyen's method 63 hours after the birth of the child, three or four pints of saline solution being introduced into the abdomen while the wound was being closed. This caused the pulse, which had become imperceptible, to revive. The operation lasted nearly three-quarters of an hour. An hour later three pints of saline solution were introduced into the median basilic vein, with one drachm of adrenalin—1 in 1000—to each pint. The convalescence was without incident. The pulse-rate for five days did not fall below 120 and was at times as frequent as 140. The uterus contained a tumour which was of about the size of the head of a three months fœtus, was slightly ovoid in shape, and had grown from the left angle of the uterus in front of the broad ligament. On incising the tumour there was a gush of excessively foul and stinking pus. The tumour was almost entirely converted into an irregular cavity lined and trabeculated by yellowish grey opaque slough. This was bounded by a layer of apparently normal fibroid tissue, which on the side nearest to the uterus was three-quarters of an inch thick, while at one point of the incision it was less than one-tenth of an inch, so that the slough was covered by very little more than the peritoneum. The necrotic change must have gone on for a considerable time before labour, but, on the other hand, the fibroid was in a normal condition when the abdomen was opened in the third month of pregnancy. The patient began

to feel pain in the tumour on exertion about the seventh month of pregnancy, and it was probable that the central necrosis of the fibroid took place about that time, or shortly before. With regard to the treatment pursued, the only alternative would have been to perform myomectomy or hysterectomy at the first operation. After labour the symptoms did not leave any alternative.—Dr. LEWERS said that where acute symptoms arose after labour complicated by the presence of uterine fibroids, it was only in exceptional cases, such as the present, that hysterectomy was required.—Dr. HERBERT R. SPENCER said that to have removed the tumour during pregnancy would have entailed great risk of abortion, and would have left behind a submucous tumour much more likely to cause trouble than a subperitoneal growth, suppuration in which was a very rare occurrence.—The PRESIDENT said there were two important questions raised in this case. First, was the course pursued in the early period of the pregnancy the right one, and justified by the exploration of the tumour? Secondly, was the total hysterectomy called for under the conditions present after the labour? On both these points he was quite in accord with the treatment pursued.

Dr. LEWERS read a paper on a case of Tumour of the Right Broad Ligament Springing from the Uterus and apparently Developed from Gärtner's Duct. The patient, who was a primipara, 47 years of age, was admitted into the London Hospital on March 24th, 1909. She then complained that for the last month there had been frequency of micturition during the day and that she had been unable to empty the bladder properly in the morning. For about the same time she had also noticed a swelling in the lower abdomen and had pain and flatulent distension after meals. A fluctuating tumour, fairly central in position, was felt rising from the pelvis to a height one inch above the umbilicus. On vaginal examination the vaginal portion of the cervix could only be reached with difficulty. It lay high up and to the left. A tense swelling, which seemed to be continuous with the tumour in the abdomen, was felt bulging down the vaginal roof and right lateral fornix. On the 26th the abdomen was opened in the usual way and the cyst, which was covered by the anterior layer of the right broad ligament and was of about the size of an adult head, came into view. It was punctured and about 2 pints of thick, chocolate-coloured, odourless fluid escaped. The partially collapsed cyst was found to lie in the right broad ligament. The right tube and ovary were normal and lay behind the cyst, the posterior peritoneal layer of the broad ligament intervening. Enucleation was easy in every direction till the right side of the uterus about the level of the internal os was reached. Here the cyst was firmly attached to the uterus by a pedicle of uterine tissue, about an inch in diameter, which was divided with scissors. The left uterine appendages showed signs of chronic inflammation and were removed. The uterus was retroverted, but was otherwise normal. The patient made an uninterrupted recovery. The microscopic examination supported the view that the tumour represented a collection of dilated ducts and cysts in the uterine wall, probably arising from the intra-uterine portion of the Gärtnerian duct.—Mr. ALBAN DORAN referred to Unterberger's remarkable instance of a bilobed cyst of the right Gärtner's duct, in which there were apparently two cysts, and on pressure on the left tumour sanious watery fluid issued from the os externum.—Dr. R. DRUMMOND MAXWELL said that he had examined the tumour, which at first sight had appeared to be an intra-ligamentous fibroid undergoing cystic degeneration. The microscopic sections, however, warranted the view that it was of developmental origin, and arose in the intra-uterine portion of Gärtner's duct.

SECTION OF BALNEOLOGY AND CLIMATOLOGY.

Chiltern Hills.—Atmospheric Electricity.

A MEETING of this section was held on Dec. 8th, 1909, Dr. LEONARD WILLIAMS, the President, being in the chair.

The PRESIDENT referred to the lamented death of Mr. C. R. B. Keetley, a former treasurer and Vice-President of the British Balneological and Climatological Society, and a vote of condolence with Mrs. Keetley was passed.

Dr. S. D. CLIPPINGDALE read a paper on the Chiltern Hills in Certain of their Natural and Medical Aspects. After dealing with the geology of the subject he mentioned amongst other interesting details that the inhabitants of the more remote parts were descendants of the aborigines, who were never displaced by invaders, either Roman, Saxon, or Danish. He then went on to describe the medical history of the places, extracted for the most part from the parish registers. In conclusion he reviewed the present state of health matters and described the suitability of the region as a health resort.

Mr. A. G. S. MAHOMED (Bournemouth) read a paper on Atmospheric Electricity. He referred briefly to the early observations of Volta, Richmann, and Franklin, and said that methodical observations dated from Lord Kelvin's invention of the water-dropping apparatus. He exhibited on the screen a chart constructed by Dr. Chree from observations at Kew showing the diurnal variation for each month of the year. From this it appeared that there was a morning maximum between 8 and 10 A.M. and an evening maximum which occurred between 6 and 8 P.M. in the winter and between 8 and 10 P.M. in the summer months. The minima were at 4 A.M. and 2 P.M. There was a range of potential from 500 to 600 volts down to a negative reading, and this variation might take place within a few minutes under certain conditions. The relation, or rather want of relation, to other meteorological factors was referred to; suggestions were offered as to the cause of the electrification of the atmosphere; some account was given of the ionisation due to electric discharge, emanations from metals, irruption of gases, heating and cooling of earth's surfaces, and magnetic currents; and attention was drawn to the differences which might be expected to exist in the amount of potential registered at sites having permanent electrical values, such as a range of rocky hills on an elevated plateau, or a place by the sea-shore, or in a river valley, or near a pine forest. Mr. Mahomed also offered an ingenious hypothesis of the building up of completed electric molecules and what he called the existence of "positive bachelor companies." In the latter part of his paper he showed some observations which he had made with a portable apparatus he had devised; these showed the effect of altitude, the increase of potential near a river, and the immediate effect of some meteorological disturbance, such as sudden wind.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL meeting of this society was held on Dec. 15th, 1909, a great many cases being shown, of which the following are a selection:—

Mr. ARCHIBALD MCKENDRICK showed a case of Post-parturient Paralysis which affected mainly the peroneal nerve of the left leg. The patient was aged 24 years, and had been confined of a stillborn child, whose head had presented transversely and to the left side. After delivery the left leg was completely paralysed, while two months later the paralysis was confined to the muscles in front of the leg, or to the group of muscles supplied by the peroneal nerve. The paralysis was probably caused by pressure on the sciatic nerve. A simple elastic apparatus had been applied, and with it the patient could walk and showed little sign of paralysis.

Dr. A. DINGWALL FORDYCE exhibited several infants who had been treated by Staphylococcic Vaccine on account of Multiple Boils or Abscesses. He had employed a stock vaccine containing staphylococcus aureus, albus, and citreus, which uniformly proved successful in from three to four days. The dose varied from 80,000,000 to 150,000,000 organisms.

Dr. EDWIN BRAMWELL showed a man suffering from Traumatic Hysteria. There was no weakness in the muscles generally but the right arm hung limply. It was not a case of musculo-spiral paralysis because all the muscles of the extremity were affected and there was no electrical disturbance of the muscles. A condition of anæsthesia and analgesia existed over the whole of the right side of the body. The senses of smell, taste, and vision were all lessened in acuity on the right side. All the typical characteristics of functional hemianæsthesia were present and there was no evidence of organic disease. The patient was a miner, and on August 21st, 1908, he had been struck on the left side of the head and left shoulder by a

fall of stone. The case was one which was being compensated for the injury and hence the stimulus to get well so as to earn a wage was wanting.

Dr. WILLIAM RUSSELL showed a woman suffering from well-marked Osteo-arthropathy. He said that the condition was often associated with chronic lung affections and was then known as pulmonary osteo-arthropathy, but in this case this association was not present. The symptoms included marked clubbing of the fingers and toes which were also elongated; some thickening of the lower ends of the bones of the forearm; stiffness at the elbow-, shoulder-, knee-, and hip-joints; marked loss of power in the hands with tremor; some atrophy of the muscles; and profuse sweating confined to the hands and feet. She had difficulty in rising from her chair and walked with difficulty. The appearance of the face suggested acromegaly. The X ray photograph showed that the thickening of the ends of the long bones was due to a subperiosteal deposit of bone. Systematic examination had failed to show the cause of the disease and no toxic condition was present. All kinds of treatment had been employed but with little benefit. Iodolysin, however, seemed to have caused some improvement and her general health and ability to walk were better since this drug had been employed.

Dr. BYROM BRAMWELL showed a case of Functional Spasmodic Contractures resembling Thomsen's Disease. The patient, who was aged 26 years, had been a miner, and was sent to Edinburgh from South Wales with a history of Thomsen's disease. As soon as muscular effort was tried spasmodic contraction of the muscles took place. The condition had existed six months and no hereditary history was present. The patient walked with extreme shaking and bending of the back; there were regular tonic contractions of the muscles of the lower limbs. The muscles were large and well developed. Anæsthesia and analgesia were present to a marked degree all over the body, and the field of vision was contracted to a great extent. The peculiarity of the gait, as well as the other symptoms, suggested its functional causation. The patient recovered in two weeks by the use of psycho-therapeutics and isolation.

Dr. NORMAN WALKER showed several patients treated by the application of Carbonic Anhydride Snow. The snow was hammered into a compact mass and when applied by forceps to the diseased part the temperature was lowered to −118° F., and within 30 seconds the part became hard and frozen without pain. He showed several cases of lupus erythematosus which had been very obstinate to other treatment, but by freezing the parts round the margin the disease had improved greatly. One case of recurrence of rodent ulcer after removal had recovered after five applications and the resulting scar was astonishingly small, while another case recovered after four applications.

Professor F. M. CAIRD showed a patient after operation for Appendicitis, General Peritonitis, and Obstruction treated by Laparotomy and Intestinal Drainage. At the operation the appendix was found to be gangrenous and the bowels distended and paralysed. The bowels were opened in various situations and drainage-tubes were inserted. Each day the bowels were washed out betwen the tubes, the stomach was washed out, and saline infusions were made into the veins. As the patient was going from bad to worse and was becoming cyanotic the intestines were filled with peptonised milk and recovery commenced at once. Professor Caird had never seen so serious a case terminate in recovery, and thought that the fatal result was in many cases due to inanition.

Mr. J. M. COTTERILL showed a young man who had suffered from Dislocation of the Cervical Vertebræ. The accident happened while he was playing football. The X rays showed that the uppermost cervical vertebra was distinctly dislocated forwards. Mr. Cotterill had tried forcible extension, but the dislocation could not be reduced. The neck was encased in plaster for some weeks, and the patient had now recovered except for some stiffness of the neck.

Professor H. ALEXIS THOMSON showed a case in which, after resection of the stomach and transverse colon for Gastric Carcinoma and re-establishment of the intestinal tract by ileo-sigmoidostomy, it was found necessary at a later period, owing to painful attacks of distension of the ascending and hepatic flexure of the colon, to resect these also.

Mr. CHARLES W. CATHCART showed an Achondroplasic man, aged 23 years, after Excision of Carcinoma of the Descending Colon.

Mr. DAVID WALLACE exhibited a man, aged 22 years, who Fractured his Spine in the Lower Dorsal Region as the result of a fall 10 months ago. There was a marked prominence over the third, fourth, and fifth lumbar vertebræ. The hæmorrhage into the cauda equina had caused complete paralysis of the lower limbs. A pulmonary trouble supervened and for a time the prognosis was grave, but now he had practically completely recovered.

Mr. H. J. STILES showed a man, aged 40 years, nine weeks after Excision of the Knee for Tuberculous Disease, to illustrate the advantage of nailing the bones. The limb was at present perfectly ankylosed.

Dr. A. LOGAN TURNER showed a patient, aged 16 years, after recovery from Septic Meningitis which complicated Chronic Middle-ear Suppuration. On admission to hospital the symptoms included a temperature of 102° F., mastoid tenderness, fœtid discharge from the left ear, severe headache, mainly frontal, slight rigidity of the neck, double Kernig sign, and plantar flexion. The cerebro-spinal fluid was under tension and the microscope showed from 40 to 70 per cent. of polymorphonuclears. At a later stage streptococci and bacilli, probably proteus vulgaris, were found in the cerebro-spinal fluid. A radical mastoid operation was performed with repeated lumbar puncture and injection of antistreptococcic serum into the spinal canal. Dr. Turner said that of 23 cases of such meningitis with ear disease admitted during the past three years this case alone had recovered.

Other cases were shown by Dr. FRANCIS D. BOYD, Mr. A. SCOT SKIRVING, Mr. J. W. DOWDEN, and Mr. J. W. STRUTHERS.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Myoma of the Uterus.—Ovarian Pregnancy.—Painless Labour.

A MEETING of this section was held on Dec. 3rd, 1909, Dr. HENRY JELLETT, the President, being in the chair.

Dr. M. J. GIBSON exhibited a specimen of Myomatous Uterus with necrosis of one large tumour and carcinoma of the endometrium. The patient was over 60 years of age, and 12 years past the menopause. She knew that she had the tumour for many years, and had been given to understand that it would never do her any harm after the change of life. She had never been pregnant, and enjoyed good health up to four weeks before he saw her, when she suffered from a severe attack of uterine hæmorrhage. The removal of the uterus was easy, but scattered everywhere over the pelvis Dr. Gibson found nodules which were deposits of carcinoma. These and the condition of the uterus showed how far the disease had extended without any symptoms. The patient did very well.

Dr. E. HASTINGS TWEEDY exhibited a specimen of Ovarian Pregnancy, probably the first exhibited in Ireland. The patient was 25 years of age. She had been married four years and had three children, the last one having been born in June, 1909, five and a half months ago. She had also had one abortion. She menstruated on Sept. 18th for the first and only time since delivery. On Nov. 5th she was seized with acute pain in the right lower abdomen, from which she almost fainted. When examined on the same day a very tender mass of the size of a hen's egg was found to the right side of the uterus which was retroverted. The left appendages were normal. The tumour on the right side could not be definitely localised to either the ovary or the tube. A diagnosis of extra-uterine pregnancy was made. On Nov. 16th right oöphorectomy was performed under ether. Both tubes and the left ovary were found microscopically to be perfectly normal. A blood-clot about three inches in diameter completely obscured the right ovary. This was clamped and removed, ovarian tissue being cut through in removal. The case had fulfilled all the conditions laid down for ovarian pregnancy. He thought that the specimen was worth public acknowledgment by the Section.—Dr. R. J. ROWLETTE said that in the specimen the corpus luteum was visible to the naked eye. A section taken through the corpus luteum and the edges of the blood-clot showed a proliferation of the cells of the corpus luteum and the mass of blood-clot, in which three or four villi were seen.

—Dr. GIBBON FITZGIBBON quoted a case reported in the November number of the *American Journal of Obstetrics*. On the day the woman expected to be delivered she complained of pains. These went off, and 12 days later she went into hospital. A tumour was found strongly resembling an ovarian cyst. On opening into it a fœtus was found. This was delivered and resuscitated. The child was up to term and free from deformities, and the patient made a complete recovery.—The PRESIDENT urged Dr. Tweedy to refer the specimen to a committee. His own opinion was that it was ovarian pregnancy.—The specimen was accordingly directed to be sent to the Reference Committee for report.

Mr. J. SPENCER SHEILL said that in order to relieve the usual suffering of women in labour he had used in his practice during the past year the scopolamine-morphine treatment on some 19 cases and gave his results, which he believed were the first of the kind published in Ireland. The many contradictory reports from users of it since Krönig's first paper on the subject seemed to be due to differences in the quality of the drugs employed. He quoted various authorities on chemistry who believed that scopolamine and hyoscine were exactly similar—among them Martindale, Binz, and even the British Pharmacopœia. This was not absolutely correct, because, although pure hyoscine and scopolamine were chemically similar, they existed in three stereo-isomeric forms—namely, dextro, lævo, and racemic modifications—and of these the "lævo" modification had much the strongest action on peripheral nerve-endings. He believed that some writers used the word scopolamine to denote this form and hyoscine to denote the other weaker forms. The processes of manufacture could change the stronger form into the weaker. Mr. Sheill said that Messrs. Burroughs and Wellcome had assured him that their tabloid hyoscine hydrobromide consisted only of the pure "lævo" form. Scopolamine, he stated, was also a respiratory and circulatory stimulant, and therefore counteracted some undesirable effects of morphine. The doses were from 1-200th to 1-100th grain of scopolamine and 1-8th to 1-6th grain of morphine. The scopolamine was sometimes repeated, but the morphine seldom or never. They were used in the first stage when the pains were becoming strong; quietness was then insisted upon and the room was darkened. The patient might sleep or get drowsy, but labour proceeded unaffected. Loss of memory for the time being was the principal after-effect which he had noted. He had also seen flushing of the face and quickened pulse. He had not observed asphyxia neonatorum or post-partum hæmorrhage, which had been recorded by some. Hard water must not be used in making the solution, as alkalies would precipitate the alkaloids and so reduce the dose given. He concluded by stating that scopolamine-morphine had many advantages, but doubted if these were not outweighed (except in a limited number of cases) by certain disadvantages.—Dr. J. R. FREELAND said that the use of scopolamine was commenced at the Rotunda Hospital in Dublin in September, 1908. They now gave 1-120th grain of scopolamine, with 1-6th grain of morphine, and repeated in 1-180th grain doses without the morphine. They had given it in about 40 cases. One infant was born slightly asphyxiated, but it breathed after a hot bath. The others were born perfectly normal. None of the women showed any abnormalities after labour, except one who got out of bed when not watched. There had been three absolutely painless deliveries.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on Dec. 8th, 1909, Dr. F. W. N. Haultain, the President, being in the chair.—Dr. J. W. Ballantyne read a paper on the Rational Puerperium. He said that the term "rational" was a reasonable one. For the last ten years or more the question of the early resumption of the erect posture had been exercising the minds of obstetricians on the Continent; but British practitioners and teachers had scarcely considered the matter, and might not now be debating the subject had not Dr. Haultain forced it upon their notice by his experiment in the Edinburgh Royal Maternity Hospital last spring. The question presented itself 35 years ago when Dr. William Goodell of Philadelphia described the method of treating the puerperium at the Preston Retreat. He permitted the woman on the morning following the day of her labour to slip into a chair whilst her bed was being made, and each day once or twice till the fourth, when she was allowed to dress herself. No patient rose against her will, yet almost all availed themselves of the opportunity. He considered that the upright position excited the uterus to contract and lessened the amount and duration of the lochia, and that convalescence was more prompt and sure; he also kept in mind the fact that uterine disease was hardly known among uncivilised races whose women leave their beds early. Dr. Garrigues in 1880, criticising Dr. Goodell's paper, reasoned that although parturition was a physiological process, it was one in which a transition to the pathological was extremely common, and that the women of our time were no longer in the same physiological condition as in the infancy of mankind. Other observers had not found that the upright position lessened the amount or duration of the lochia. In 1899 Küstner raised the question at the German Society for Gynæcology in Berlin. He thought that women who had passed through a normal labour with no laceration or infection ought to rise on the third or fourth day or even the second day after delivery, and that prolonged rest was harmful, but in abnormal cases or after tedious labours longer rest in bed should be permitted. He stated that early rising did not cause suffering nor did the patients develop prolapse or retroversion of the uterus, that involution was not delayed but hastened, that the bowels acted better or naturally, that appetite was improved, and that there was no difficulty with micturition. Fears were expressed in the discussion by Olshausen and others lest involution of the supporting ligaments might be interfered with, lest the abdominal walls might remain relaxed, that thrombosis might be more frequent, and lest the pelvic musculature might suffer. Much has been written since on the subject by many authors, including E. Martin, von Winckel, Brisset, von Alvensleben, Hinchey, Gellhorn, Fromme, Hofmeier, Fehling, and Haultain. Most of the records have been favourable to the new departure and seem to show that after normal labours prolonged rest in the horizontal posture is unnecessary. But Gellhorn, from observations on 1000 women treated in this way in Berlin and discharged from the hospital in perfect condition, stated that many afterwards required weeks of treatment and rest for troubles which had occurred after returning home. He also referred to Wagner's observations on Javanese women who were compelled by an old law to get up immediately after confinement and walk about, but not to attend to their domestic duties; yet embolism and prolapsus uteri were frequent. Fromme had a death from embolism in a patient who was allowed to get up for one hour on the second day. Dr. Ballantyne made some observations during his recent term of duty at the Maternity. He only practised douching occasionally; delayed lochia he treated by raising the upper end of the bed, and in most cases he gave a puerperal pill, advocated by Dr. H. Oliphant Nicholson, of sulphate of quinine and extract of ergot, with occasionally the addition of digitalis folia. In reading the papers of Krönig, von Wild, and Schücking, he had been much impressed with the benefits obtained by gymnastic exercises in bed during the puerperium. He accordingly carried out Liegegymnastik on all cases which he considered suitable. The patients, covered with a blanket, lay flat on their backs, then rolled three times to each side, and thrice they drew up and extended the knees. Arm exercises were carried out in varied movements. These exercises in the majority of cases were begun on the day after labour, never later than on the fourth day. On the first day they lasted for 10 minutes, on the second for 20 minutes, and on the other days for 30 minutes. No compulsion was used, and no patient refused to carry out the exercises; the majority enjoyed them. In most cases the tone of the muscles was above the average when the patient left the hospital; the result was poorest in phlegmatic women or in those who had no enthusiasm for the exercises. No marked effect upon the action of the bowel could be traced. Of the patients who had performed the exercises 1 rose on the sixth day, 43 on the seventh day, 38 on the eighth, 19 on the ninth, 4 on the tenth, 1 on the eleventh, and 1 on the twelfth. The patients all felt better and stronger on getting up than after labour without the exercises. In conclusion, Dr. Ballantyne considered that the ordinary hospital patient after a normal labour should rise on the eighth or ninth day; that systematised exercises during the early days of the puerperium were helpful in

keeping the muscles in good tone, and that when these exercises were carried out the patient might rise safely on the seventh day.—The discussion on this paper was postponed until the next meeting of the society on Jan. 12th.—Dr. B. P. Watson and Mr. Henry Wade contributed a paper on the Histological Changes associated with an Early Abortion and the Anatomy of the Ovum.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 15th, 1909, Dr. Adam Fulton, the President, being in the chair.—A resolution of sympathy with Mrs. Ransom on the death of Dr. W. B. Ransom was proposed by the President, seconded by Dr. C. H. Cattle, and passed unanimously, the members rising in silence to signify their assent.—Dr. Cattle read a paper entitled "Milk—Sweet and Sour." He contrasted the various views as to whether man was morphologically a carnivorous or a herbivorous animal and summed up chiefly in favour of a lacto-vegetarian diet. He considered that too much meat was habitually eaten, and that many diseases, such as gout and arterio-sclerosis, were due to the use of food containing purin bases. Milk ought to form part of the ordinary dietary. A pint of milk had a heat-producing power equivalent to 325 calories; its chief constituents were proteids, fats, and carbohydrates, with practically no uric acid bases. An almost perfect diet was cheese with bread and milk. Owing to the presence of impurities milk should always be heated to at least 160° F. before use. On account of the putrefactive agents in the colon being more active in an alkaline medium it was a distinct advantage in a medical point of view that milk should be subjected to the process of souring and that it should reach the colon in an acid form. Souring was best brought about by adding Bulgarian bacilli to boiled milk and allowing it to incubate. Metchnikoff looked upon sour milk as an intestinal antiseptic. Dr. Cattle said that he was at present treating cases of typhoid fever by this method and the results were very gratifying.

LIVERPOOL MEDICAL INSTITUTION.—A pathological meeting of this society was held on Dec. 9th, 1909, Mr. T. H. Bickerton, the President, being in the chair.—Mr. R. J. Hamilton showed two Orbital Tumours removed by Krönlein's operation. One of them was a fibro-sarcoma which surrounded the outer two-thirds of the optic nerve, while the other was an endothelioma springing from the suture between the great wing of the sphenoid and orbital plate of the frontal bone.—Dr. G. G. Stopford Taylor and Dr. R. W. MacKenna showed under the microscope (1) a section of pityriasis rubra, and (2) a section of tuberculosis cutis, which clinically suggested blastomycetic dermatitis. They also showed the spirochæta pallida revealed by the Leitz dark ground illuminator; the organisms were present in large numbers, and their movements could be easily studied.—Dr. T. R. Bradshaw and Dr. Ernest E. Glynn showed a case of Latent Cancer of the Œsophagus. It was situated at the bifurcation of the trachea, infiltrating both bronchi; the left lung was emphysematous, the right lung collapsed.—Dr. R. J. M. Buchanan and Dr. Glynn showed a specimen of Acute Pneumonic Phthisis; the lower lobe of the right lung was in a condition of caseous pseudo-lobar pneumonia; there were no pneumococci in the lung tissue, but there were numbers of tubercle bacilli and staphylococci.—Mr. Keith W. Monsarrat read a note on Hypernephroma of the Kidney occurring in a man aged 27 years, who had suffered on two occasions from right renal colic associated with hæmaturia.—Professor B. Moore read a note on the Cardiac and Hæmolytic Action of the Sapo-glucosides.

BRADFORD MEDICO-CHIRURGICAL SOCIETY AND BRADFORD DIVISION OF THE BRITISH MEDICAL ASSOCIATION.—A joint meeting of the above societies was held at the Bradford Royal Infirmary on Dec. 14th, 1909, Dr. Ward Ward-Smith being in the chair.—The evening was devoted to the demonstration of clinical cases and pathological specimens, of which the following are a selection.—Dr. Adolph Bronner gave a demonstration on patients of Direct Laryngoscopy, Tracheoscopy, and Bronchoscopy by Killian's and Jackson's instruments; he also showed some cases of Deviation of the Nasal Septum treated by Killian's method of submucous resection.—Mr. J. Basil Hall showed (1) some Carcinomatous and Fibroid Uteri removed by abdominal hysterectomy and by Wertheim's operation; and (2) a Hat-pin removed from the Left Bronchus through a low tracheotomy opening.—Dr. T. Jason Wood showed a case after Laminectomy for Paraplegia due to Spinal Caries.—Dr. Andrew Little showed (1) Bifocal Spectacles; and (2) a case after operation for Double Mastoid Disease, Subdural Abscess, and Lateral Sinus Thrombosis.—Mr. Rawlinson showed a case of "Winged Scapula."—Mr. F. W. Goyder showed a case after Removal of the Nose, the Left Cheek, and Anterior Wall of the Antrum for Epithelioma secondary to Lupus.—Mr. W. G. S. Brown showed an Aortic Aneurysm which perforated the Sternum, and a Stomach after Gastro-enterostomy.—Mr. H. C. Ling showed a case exhibiting Spasm of the Muscles supplied by the Ulnar Nerve.—Other specimens were shown by Mr. James Phillips, Mr. W. H. Horrocks, and Dr. C. F. M. Althorp.

Reviews and Notices of Books.

Annals of Tropical Medicine and Parasitology. Liverpool: At the University Press; London: Archibald Constable and Co. Vol. II., No. 4. Illustrated. Pp. 66. Price 7*s.* 6*d.* net. Vol. II., No. 5. Illustrated. Pp. 60. Price 7*s.* 6*d.* net. Vol. III., No. 1. Pp. 256. Price 10*s.* 6*d.* net.

IN No. 4, Vol. II., of the Annals Professor Benjamin Moore, Dr. M. Nierenstein, and Professor John L. Todd make a contribution Concerning the Treatment of Experimental Trypanosomiasis, Part II. This paper continues the work already published by these observers on the treatment of experimental trypanosomiasis. They point out that of the rats which were still alive at the date of the publication of their last paper those treated with atoxyl alone have all died from trypanosomiasis, while those treated with atoxyl followed by mercury survived until they died from pneumonia or were killed on account of skin diseases. An account is given of several drugs and combination of drugs which were tried without advantage upon rats infected with Trypanosoma brucei. Among these were various preparations of quinine, cinchonine, arrhenal, and potassium bichromate. Several aniline dyes were tried, but none of them were of much value. In the treatment of dogs, guinea-pigs, and mice the acetylated atoxyl followed by bichloride of mercury gave the best results. Those treated by acetylated atoxyl or atoxyl alone were not so satisfactory. None of these methods generally cure well-established infection in these animals. In the case of rabbits atoxyl followed by bichloride of mercury was found much better than atoxyl alone. Atoxyl and mercury combined are also distinctly superior to atoxyl alone in the treatment of donkeys, but neither method cures a well-established infection. The treatment of rats, infected with Trypanosoma brucei, by trypanroth followed by bichloride of mercury is superior to treatment by trypanroth alone, but inferior to the treatment with atoxyl and bichloride of mercury. Generally inoculations made from animals in whose blood trypanosomes could not be found were negative; a few, however, were positive. These cases are of considerable interest, for although the incubation period in them was considerably lengthened, once the parasites appeared in the blood the course of the disease was normal and the animals died in the usual time. Mr. R. W. Orpen describes an unusual case of Goundou. Mr. Henry Simms contributes a valuable article on Subdrainage as Applied to the Anti-malarial Campaign on the Isthmus of Panama. On the isthmus the rainfall is very heavy, averaging about 180 inches on the Atlantic coast and 80 inches on the Pacific coast. The rainy season lasts from May to December inclusive. With this long period of heavy rainfall open drains and the use of larvicides were practically impossible, for all the pools could not be covered with paraffin. The only practical method was to get rid of the water and

not allow it to stand. Mr. Simms points out that on the isthmus Anophelines breed in clear running water during all months of the year, so that the annual expense of an open ditch system of drainage would be prohibitive. He then describes the method of subdrainage which was adopted. Porous unglazed tiles were used and the results have been of the most satisfactory nature. The article is of a very valuable and practical nature. A new culicid genus is described by Mr. F. E. Theobald, and Mr. Frank Jeans contributes an interesting article on Inflicted Talipes of the Chinese. In a previous number of the Annals (Vol. I., No. 4, 1908) Dr. A. Broden, director of the laboratory, and Dr. J. Rodhain, director of the hospital for the blacks at Leopoldville in the Belgian Congo, described some cases of natural infection with the parasite Porocephalus moniliformis. This linguatulid produces fatal results in the human subject, and no treatment is available. It also infects monkeys and other mammals, and snakes. The authors found several monkeys and snakes infected with the parasite, and in order to elucidate its life cycle infected various animals experimentally. As the result of their experiments they come to the conclusion that the larval form is found in the monkey, the adult form in snakes. Men and various mammals, such as monkeys, rats, and cats, become infected through swallowing the eggs of the parasite; they are the intermediate hosts. Snakes, particularly large snakes, become infected by swallowing the intermediate hosts; they are the true hosts of the parasite. A new species of porocephalus is described by Dr. Anton Breinl and Mr. Edward Hindle, and there are articles on Comparative Chemo-therapeutical Study of Atoxyl and Trypanocides and Chemical Notes on Atoxyl by Dr. Nierenstein.

The first contribution in No. 5, Vol. II. of the Annals, is on the Nomenclature of the Mammalian Trypanosomes Observed in North-Western Rhodesia, by R. Eustace Montgomery, M.R.C.V.S., and Dr. Allan Kinghorn. This is a plea for a classification of trypanosomes, for which the authors claim a practical value for members of expeditions working in foreign countries. They use the morphological characters which are obvious, even with the apparatus at the disposal of a traveller, combined with some very obvious clinical reactions in different species of trypanosomes which are morphologically similar. As a rough-and-ready method of classification this seems practical, although it may possibly lead to some confusion. Dr. Breinl contributes an article, Experiments on the Combined Atoxyl-Mercury Treatment in Monkeys Infected with Trypanosoma Gambiense. In five out of six cases he apparently obtained a complete cure by the administration of acetylated atoxyl and sublimate, or Donovan's solution. Mr. Prosper H. Marsden describes some new Drugs from the Congo, and Mr. E. H. Ross a Gregarine Parasitic in the Dog-Flea. Dr. Breinl and Dr. Nierenstein, in an article on the Action of Aryl-Stibinic Acids in Experimental Trypanosomiasis, describe the results of a number of experiments with organic antimony compounds. Plimmer and Thomson first described experiments upon the trypanocidal action of antimony, and their work was confirmed and enlarged by Mesnil and Brimont and other observers. The present authors find that the antimony compounds used by them gave very excellent results, although they claim that they are not so powerful as the potassium antimonyl tartrate used originally by Plimmer and Thomson. Dr. Breinl and Dr. H. E. Annett in a note on the Mechanism of Hæmolysis in Piroplasmosis Canis come to the conclusion that the hæmolysis and hæmoglobinuria in infections with Piroplasma canis are due to a disintegration of red blood corpuscles after the escape of the parasites from them.

The first number of Vol. III. consists of a lengthy description of an investigation into the mechanism of the production of blackwater fever, by Dr. J. O. Wakelin Barratt and Dr. Warrington Yorke. An enormous amount of valuable and detailed information is contained in this report, but it must be regarded rather as an exhaustive collection of facts than as affording any solution to the problem of the cure or prevention of the disease. The first section deals with the hæmolysis of red blood cells by quinine, and also by acids, alkalies, and urine. Quinine bihydrochloride and quinine in the alkaloid state produce hæmolysis of red blood cells, as do also hydrochloric acid and sodium hydrate. The authors show, however, that, owing to the toxicity of quinine, its concentration in the blood cannot reach an amount sufficient to allow of its hæmolytic action in cells taking place during life. The red blood cells during blackwater fever are not hæmolysed by quinine bihydrochloride more readily than they are in health. After dealing exhaustively with many observations regarding the mechanism of suppression of urine in blackwater fever, the authors come to the conclusion that it is of mechanical origin due to the blocking of the renal tubules. With regard to the mechanism of production of blackwater fever, the authors come to the following conclusions. In the urine in blackwater fever red cells may be found during hæmoglobinuria, usually in very small numbers. In blackwater fever the hæmoglobinuria which occurs is the result of an accompanying hæmoglobinæmia. Sufficient data are not available to determine the situation in which laking of the cells, leading to hæmoglobinæmia, occurs in blackwater fever. The details of a large number of cases of blackwater fever being given with exhaustive tables and charts make the article a complete account of the clinical features and pathology of blackwater fever.

These annals are of great use to all investigators.

The Apologia and Florida of Apuleius of Madaura. Translated by H. E. BUTLER, Fellow of New College. Oxford: At the Clarendon Press. 1909. Pp. 238. Price 3*s.* 6*d.* net.

APULEIUS of Madaura, a town in Numidia, is best known to modern readers as the author or preserver of the story of Cupid and Psyche, a tale embodied in his novel commonly called "The Golden Ass." Delightful as that novel is, with its tales of robbers and witches, there is a work of Apuleius of far more interest to medical readers—namely, the Apologia—and this treatise, together with another, the Florida, have recently been rendered accessible to English readers in the admirable translation of Mr. H. E. Butler. The style of Apuleius presents great difficulties to a translator. It is extremely bombastic and abounds with words which are hardly Latin. It may be compared to the English which we should expect from an educated foreigner who had saturated himself with the writings of Ouida and was well read in quack pamphlets. The occasion of the Apologia was a charge brought against Apuleius in the courts at Sabrata, now Zowâra, some 60 miles west of Oea, the modern Tripoli. He was accused of having won the love of a rich widow of Oea by magic, of having married her solely for her money, and of being a man of immoral life. The charges were so absurd, and the character of Rufinus—his principal accuser, though the case was not brought in his name—was so shady, that it cannot be doubted that Apuleius was acquitted, although we do not know that he was so. Scattered throughout the Apologia, the speech which he made in his defence, are a number of incidents having a medical or scientific bearing, some of which throw a curious light upon the social habits of a Roman town in North Africa in the second century A.D. For instance, one of the counts in the indictment was that Apuleius had written to a friend in verse sending him some

tooth powder, as if, says Apuleius, sending a friend tooth powder was equivalent to sending him poison:—

> "..... ex Arabicis frugibus,
> Tenuem, candificum, nobilem pulvisculum."

Another count charged him with having a mirror: "habet speculum philosophus." So horrible was this considered that Pudens, counsel for the prosecution, nearly exploded as he declaimed against it, "pro rei atrocitate paene diruptus est Pudens clamitans." However, the charge was the occasion for Apuleius to give a display of his learning about mirrors and the physics of light, a discourse which, doubtless, edified the fashionable people who had come to hear the trial. More serious charges were that he had gone about asking the fishermen to get him curious "fish"—i.e., marine fauna in general—that he had actually dissected them, that he kept "something at home which he worshipped in secret" (this last charge he disposes of by saying that, even if he did, it was much better to worship something than nothing), and, worst of all, that a boy fell to the ground in his presence owing to his incantations. As regards this charge, Apuleius says that everybody knew that the boy in question was epileptic who had fits every three or four days without any incantations, "his face is ulcerous, his head bruised in front and behind, his eyes are dull, his nostrils distended, his feet stumbling," a very good picture of the confirmed epileptic. Further, says Apuleius, everyone knows that the boy is of revolting appearance and that his body is rotten with disease. Probably he was tuberculous in addition to being epileptic.

To return to the charge of the "fish," which the prosecution said was "a sea hare," Apuleius replies that it was not a sea hare but another kind of "fish" of which he did not yet know the name, "necdum etiam decerno quid vocem," but it was unique in one respect, so far as he knew, in having "twelve bones resembling the knuckle bones of a sucking pig, linked together like a chain in its belly." The sea hare (*Aplysia depilans*) is a mollusc and well known, so it is probable that the "fish" to which Apuleius refers was a mollusc also. It seems impossible to identify, and the only mollusc to which it might refer is *Scaphander lignarius*, which has three gizzard plates of a bony material, and the surfaces of two of these somewhat resemble the articular surfaces of small knuckle bone. It was perhaps fortunate for Apuleius that the animal was not a "sea hare," for that was a well known ingredient in magic concoctions and does secrete a poisonous substance, while it has a peculiarly offensive odour.

To pass to the Florida. This treatise is a collection of "elegant extracts" from the speeches of Apuleius, selected by himself or possibly by one of his admirers. Extract 19 is a story about Asclepiades, a famous physician who rescued a man from the jaws of death. Another extract is a glorification of Apuleius' own talents. The second extract is a remarkable passage on the eagle's power of flight and vision, and we quote a portion of it together with Mr. Butler's translation, a translation in which, knowingly or unknowingly, he has followed the style of Jeremy Taylor:—"Aquila enimvero cum se nubium tenus altissime sublimavit evecta alis, totum istud spatium, qua pluitur et ninguitur, ultra quod cacumen nec fulmini nec fulguri locus est, in ipso, ut ita dixerim, solo aetheris et fastigio hiemis: cum igitur eo sese aquila extulit, nutu clementi laevorsum vel dextrorsum tanta mole corporis labitur, velificatas alas quo libuit advertens modico caudae gubernaculo, inde cuncta despiciens eminus, inhibens pinnarum indefessa remigia ac paulisper cunctabundo volatu paene eodem loco pendula circumtuetur ..... ." ("The eagle, on the other hand, soars exceeding high in heaven to the very clouds ..... and having towered thus high, with gentle motion he turns his great body to glide to left or right, directing his wings, that are as sails, whither he will by the movement of his tail, which, small though it be, serves as a rudder. ..... ") This passage might well be a description of a modern aeroplane, and it is curious to note how much Apuleius, with all his florid style, was indebted in the passage quoted to the Æneid.

Mr. Butler is to be congratulated for the manner in which he has set forth the writings of a most interesting personality in an English dress.

Age Incidence, Sex, and Comparative Frequency in Disease. By JAMES GRANT ANDREW, M.B., C.M.Glasg., F.F.P.S.Glasg. London: Baillière, Tindall, and Cox. 1909. Pp. 439. Price 10*s.* 6*d.* net.

THE registration of sickness occurring in hospital practice is one of the pressing needs of modern medicine. It has repeatedly been protested that in this country the records of that important section of national sickness which is treated at the public expense has never been put to its full use. In the interests of vital statistics more especially, the continuance of this waste at the present day is greatly to be deplored, for it is obvious that the records of mortality alone can never supply that accurate knowledge of the local prevalence of sickness which is essential to the due protection of the people's health. We therefore gladly draw attention to a recent work by Dr. James Grant Andrew of Glasgow on the age and sex incidence of the principal diseases, and on the comparative frequency of their occurrence among patients admitted to the wards of a large public institution. For the purpose of this investigation access has been obtained to the clinical records of 42,603 cases under treatment during the last ten years in the Western Infirmary of Glasgow. Now although this number, in the aggregate, is considerable, it appears to us that when, as in the present case, the total is subdivided under numerous headings, the facts included in some of them must be too few for profitable statistical study; by extension of the inquiry to other hospitals a more adequate basis of observation might have been secured, with proportionately increasing value to the results. That the author virtually admits the force of this contention we gather from his intimation that, in some instances cited by him where the numbers of cases under examination were insufficient to establish a conclusion, he has not hesitated to compare his own experience with that of other observers, and to notify differences accordingly. He nevertheless inclines to the opinion that, for the objects he has now in view, satisfactory results have been achieved by limiting inquiry to the hospital here referred to. With the object of justifying the publication of a separate treatise on subjects that are already fully discussed in every modern text-book of medicine the author contends that in order to perfect the clinical classification of diseases and to aid in their diagnosis in hospital practice there is an actual need for such a work as the present. Although at present it would perhaps be Utopian to seek for an extension of the provisions of the Registration of Deaths Act so as to include the registration of non-fatal sickness as well as of mortality, yet this is the direction in which we are tending.

In order to augment the value of his work for diagnostic purposes, Dr. Andrew has undertaken the laborious task of classifying, by age as well as by sex, several thousand cases of disease, indicating in most instances the particular stage of life at which his experience shows each particular disease to have been most prevalent. He is fully aware of the fallacies which might, and which actually do, affect this method of disease classification. Among others there is the common fallacy that the cases, being hospital patients, are presumably above the pauper class, on the one hand, and

for the most part below the self-supporting class, on the other. Moreover, the figures given relate, not to the date of attack by a given disease, but to the date of admission to hospital, and it is the unfortunate fact that these dates may be widely separated. The author is careful to point out that in considering the frequency of disease, as illustrated by the instances cited in his book, the records are those of a large general hospital. On this point he continues: "It might also be argued that these records deal with a severer type of disease than is met with in private practice, and that many of the purely functional disorders are never met with in hospital; but though this may be correct, a large majority of the cases were admitted, not for special medical or surgical treatment, but for special nursing, so that the disease, as found in hospital, is simply the disease of private practice writ large." Nevertheless, it appears to us clear that the cases dealt with in this book are essentially "selected cases," and that therefore the statistics respecting them are not properly comparable with those respecting the community in general.

Treating of the relation of sex and age to the chief forms of disease Dr. Andrew proceeds to show that, apart from affections of the generative organs, of which women are most frequently the victims, a large majority of diseases are more common in males than in females. Taking the entire series of 42,603 cases we read that not less than 61 per cent. of them were of the male sex. Among affections of the more important organs we learn that pulmonary diseases were more prevalent among males than among females in the ratio of three-fourths to one-fourth. Of pulmonary diseases generally, the cases among males predominated in various proportions. Thus of the cases of acute pneumonia 82 per cent. were males; of the cases of pulmonary tuberculosis, 67 per cent.; of the cases of bronchitis, 71 per cent.; and of the cases of pleurisy and empyema, 74 per cent. The only instance in which female cases preponderated was that of asthma, where the proportions were 64 per cent. for females and 36 per cent. for males. The age-period 20 to 30 years is that in which the largest number of pulmonary affections occurred. In this period the highest proportion of cases of acute pneumonia were observed, and the cases of acute pleurisy were then more frequent than in either the preceding or the succeeding decade. Tuberculous phthisis was also more common in this decade than in any of the others. Between the ages of 30 and 40 asthma was most common, the cases being then more numerous than in any other equal period. Between the ages of 40 and 50 chronic bronchitis became the prevailing type of lung disease; nor were the numbers greatly exceeded in either of the succeeding decades. The pulmonary affection most frequently observed was acute pneumonia. Up to 40 years of age cases of this affection were in excess at every decade, but after that age they gave place to chronic bronchitis. Tuberculous phthisis followed in order of frequency, and the cases of this disease among young adults were only less numerous than those of pneumonia. Next in frequency in this series came diseases of the stomach, which accounted for about 4 per cent. of the total. Taken together, the affections of this organ were more frequent in females than in males in the proportion of two-thirds to one-third. This is due to the exceptional liability of females to suffer from gastric ulcer, not less than 90 per cent. of the cases of which affection occurred in women. Nearly half the total cases of disease of the stomach were diagnosed as gastric ulcer, the largest proportion of which occurred at ages between 20 and 30. Respecting the relative frequency of the various affections of the stomach at later ages it may be said that between 30 and 40 years dilatation and simple stricture were the most frequent, while between 50 and 60 carcinoma was pre-eminent.

Taking together the 1474 recorded cases of disease of the heart we find that there was a greater frequency of disease among males than among females. This was accounted for by the larger number of cases of angina pectoris and of aortic disease in men. Other affections of the blood-vessels were also more frequent in the male sex; this was due to the large number of cases of aneurysm recorded, 87·6 per cent. of which were in men. Of the 1475 recorded cases of kidney diseases, 62·9 per cent. were in males. Abscess, calculus, Bright's disease, and paroxysmal hæmoglobinuria were more frequent in the male sex, whilst carcinoma and tuberculosis of kidney were commoner in the female.

A study of the relative frequency of disease helps to diagnosis in two ways: first, by making it possible to contrast the comparative frequency of different diseases of the same organ at all ages; and secondly, by enabling one to ascertain the ratio of frequency at different ages. To show how the relative frequency of disease might be used as an aid to diagnosis Dr. Andrew quotes from his returns the case of affections of the anus, among which the most common are hæmorrhoids. But hæmorrhoids are not the most frequent of these affections at every stage of life. Among his 42,603 cases not a single case of this affection occurred below the age of ten years. The most frequent anal trouble recorded during the first and second decades of life was fistula; in the third decade the cases of hæmorrhoids and of fistulæ were equal in number; but in the four subsequent decades the number of cases of hæmorrhoids exceeded that of any other condition. From these data Dr. Andrew concludes that, given an anal affection in a patient under 30 years of age, the probability is that the condition is one of fistula or of ischio-rectal abscess, and if the patient is over 30, and more particularly if he is over 40, years of age, the probability is that the condition is one of hæmorrhoids.

Enough has been said to induce others, we hope, to follow the example of Dr. Andrew and to establish where practicable a hospital register of disease.

LIBRARY TABLE.

Tuberculosis of the Nose and Throat. By LORENZO B. LOCKARD, M.D., Laryngologist and Rhinologist to the Jewish Consumptives Sanatorium, &c. With 85 illustrations, 64 being in colours. St. Louis: C. V. Mosby and Co. 1909. Pp. 384.—The first chapter consists of a historical survey of laryngeal tuberculosis commencing at 400 B.C. and going down to the year 1886, when what Dr. Lockard aptly terms the inauguration of a rational therapy occurred, the brilliant work of Heryng taking the medical profession by storm, though two decades have been required to establish the soundness of his views; in America especially there has been great opposition to surgical interference in laryngeal tuberculosis. The vexed question relative to the occurrence of primary infection of the larynx is investigated with care, the opinions of the most competent observers being given, and the deduction Dr. Lockard makes is practically that the existence of primary laryngeal tubercle is not proven. Chapter III. also deals with controversial matter—i.e., infection, endogenetic and exogenetic. Here, again, Dr. Lockard gives all the information he considers advisable, and expresses the opinion that both methods of infection exist. Under Pathology we find nothing new, but there is a useful *résumé* of our knowledge as it exists at the present day. We notice that Dr. Lockard is in agreement with those who deny the value of early laryngeal pallor as a diagnostic sign. The view taken as to the prognosis is that recoveries are met with in from 50 to 60 per cent. of the cases, not

taking into consideration the ultimate fate of the individual. If this estimate is correct it speaks volumes for the modern treatment of this complication. All forms of treatment are ably set forth with general rules for their application. The latter portion of the book is devoted to nasal and oral lesions and adds materially to the usefulness of this monograph, which is the last work on the subject in our language. It is also exceedingly well illustrated and so will prove invaluable to those interested in the subject.

The Care of Children from Babyhood to Adolescence. By BERNARD MYERS, M.D. Edin., M.R.C.S. Eng. With a Preface by GEORGE F. STILL, M.D. Cantab., F.R.C.P. Lond. London: Henry Kimpton. Pp. 172. Price 1*s.* 6*d.*—This book is written for the use of mothers and nurses, and we quite agree with Dr. Still when he says in his preface that "the volume Dr. Myers has written is full of sound common-sense instruction upon just those points upon which mothers and nurses need information." The ideal nursery which Dr. Myers advocates is perhaps too ideal for any parent to have the means to carry out except a millionaire, but all the same it is the one to aim at. The directions as to feeding and the like are very plainly and simply written, so much so that we can hear many a mother or nurse saying, "Well, of course, I know that." But we recently heard, and heard definitely, of a well-to-do family in which an infant of six months old was brought down to dinner on Christmas Day and given crystallised fruits and port wine, so that instructions on elementary matters are not unnecessary.

The Pilgrim Fathers. By WINIFRED COCKSHOTT. London: Methuen and Co. Pp. 348. Price 7*s.* 6*d.* net.—The history of the Pilgrim Fathers must always be of interest to the inhabitants of this country, and of England in particular, for it shows our countrymen at their best and worst. At their best on account of the stern determination to obtain freedom of action and of religion for themselves, at their worst in that freedom of action for themselves came to mean no freedom for anyone else. As Miss Cockshott well puts it: "The future career of the Puritans both in England and Massachusetts showed plainly enough that it was not religious liberty that they claimed, but Puritan domination." It is not the province of this journal to discuss the various causes, religious and secular, which led to Separatism, and which led the Separatists first to settle in Leyden and finally in America in the district which is now Massachusetts. But there are sundry interesting medical points to which we may draw the attention of our readers; for instance, the Rev. John Smyth, who was a conforming cleric at Lincoln as late as 1605, was some four years later in Amsterdam as a member of the Separatist congregation which called itself the Ancient Church. About 1609, disgusted with the bitter Calvinism of this body, he started a congregation of his own, "the second English Church of the Separation." He died in 1612, and it is recorded of him that he had no salary from the church, "supporting himself as a doctor, and from the sick poor he took no fees, and from the richer sort only one-half as much as other doctors did." Whether he had had any medical education whatever Miss Cockshott does not mention. Owing to difficulties with the Dutch, and for various other causes, the members of the Separatist English congregations in Leyden determined to go to America, and they finally arrived in the *Mayflower* at Cape Cod on Nov. 21st, 1620, after having been 65 days at sea. Plymouth, where the colony was finally established, was on the western side of Cape Cod Bay. As might be expected, most of them were exceedingly sea-sick, and one of the sailors "would always be contemning the poor people in their sickness and cursing them daily with grievous execrations." He also was kind enough to say that he "hoped to cast half of them overboard before they came to their journey's end, and to make merry with what they had ..... but it plase GOD, before they came half the seas over, to smite this young man with a grievous disease, of which he died in a desperate manner, and so he was himself the first that was thrown overboard." Only one passenger died on the voyage, but the losses to the colonists during the first winter were appalling. Of 104 persons who landed—namely, 92 adults and 12 children—48 adults and 5 children died in the first year, and of 18 married women 14 died. Exposure, bad weather, and the anxiety natural to their position, with poor food, seem to have been the cause of the mortality; "coughs and colds, the weather proving suddenly cold and stormy, which afterwards turned to the scurvey whereof many died." Still they struggled on and the colony grew and prospered, entering into federation with the neighbouring colonies, while at the same time legislation grew more and more restrictive until practically no one could do anything without the consent of the Courts of Commissioners of the federated colonies. Some of the restrictions were of value; for instance, Francis Crooker wished to marry Mary Gaunt, and he was ordered by the court to get first a certificate "that the disease from which he is sometimes troubled is not the falling sickness." Plymouth ceased to be a separate colony in 1691, being then incorporated in Massachusetts. We have only space for one more delightful piece of information. The stoicism with which the Red Indian bears pain is well known, and it struck the Pilgrim Fathers with amazement. But it is cheering for us who suffer in these days to learn that "toothache is the onely paine that will force their stout hearts to cry." We are grateful to Miss Cockshott for a most interesting book.

Our National Drink Bill. By JOHN NEWTON. London: James Nisbet and Co., Limited. 1909. Pp. 155. Price 1*s.* net.—This little book is written for the National Commercial Temperance League, whose aim "is to spread the principles of total abstinence amongst commercial, professional, and business men." It marshals an array of facts and figures which are certainly imposing. It is evident, and no one will deny it, that we as a people spend a vast amount upon alcoholic drinks, no less, according to Mr. Newton, than (in 1907) £167,016,000, though he does not say how he arrives at these figures. Over-indulgence in alcohol is certainly a cause of disease, of crime, and of poverty; neither do medical men need a book to tell them this. But it must be remembered that the consumption of alcoholic drinks is steadily decreasing, and has been doing so for some years. Mr. Newton's last chapter demands a variety of impossible conditions, such as that no man should be allowed to go into a public-house under the age of 21. Also he asks that "Sundays, Christmas day, Good Friday, and bank holidays should be religiously shut out from facilities for drinking." We agree with Mr. Newton's contention that a good deal of the money spent on drink is wasted, but we cannot follow him in all his suggested remedies.

Where Knife is Driven: A Story. By MAX TROTTER, M.D. London: Arthur H. Stockwell. Pp. 80. Price 1*s.* net.—This is excellent fooling; it is a skit on the numerous and foolish stories describing hospital life and medical matters which appear from time to time in serial publications and in book form. Readers may recall a novel which had a great vogue in which a large dance was given to the nurses of a London hospital *in the operating theatre.* The incidents in the little book before us are as wildly improbable but more amusing. Dr. Trotter's pamphlet, for it is little more, would make an excellent Christmas card to send to house surgeons and nurses; the hilarity of all would be increased by its perusal. The frontispiece is

very funny; it is a faked photograph of a very sentimental scene in which the representation of the heroine hardly tallies with her description in the text.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by Sir RAY LANKESTER, K.C.B., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S., SYDNEY J. HICKSON, M.A., F.R.S., and E. A. MINCHIN, M.A. With lithographic plates and figures in the text. New Series, No. 215 (Vol. LIV., Part 3). December, 1909. London: J. and A. Churchill. Price 10*s.* net.—This part of the *Quarterly Journal of Microscopical Science* contains four memoirs, of which the first is a detailed account of the Formation of the Layers in Amphioxus and its Bearing on the Interpretation of the Early Autogenetic Processes in Other Vertebrates, by E. W. MacBride, D.Sc., LL.D., F.R.S., Strathcona professor of zoology in McGill University, Montreal, with four plates and ten text figures. Dr. MacBride gives an historical *résumé* of the development of amphioxus in which he briefly sums up the statements of Kowalewsky, Hatschek, Lwoff, and others, as well as his own, which last were criticised in a hostile sense by Cerfontaine. The present memoir is an effort to establish and to extend his former statements. He describes the process of gastrulation in amphioxus as leading to the formation of a single layer of invaginated cells which appear to be uniform. The closure of the blastopore in amphioxus is due to the concrescence of the lateral lips of the blastopore and to the upgrowth of the ventral one. By these processes the ventral, not the dorsal, surface of the embryo is formed. The mesoderm owes its origin to the outgrowth of fine cœlomic pouches from the archenteron, as in balanoglossus. The formation of the layers in other vertebrata can be derived from that of amphioxus by allowing for the disturbing influence of food yolk in the ventral wall of the archenteron, and in mammalia for the disturbing effect of contact with the uterus. 2. The Structure, Development, and Bionomics of the House Fly, Musca Domestica, Linn., by C. Gordon Hewitt, D.Sc., late lecturer in economic zoology, University of Manchester, with a plate. This article is dealt with in an annotation on p. 42. 3. The Development of the Temnocephaleæ, by Professor W. A. Haswell, M.A., D.Sc., F.R.S., with three plates. The temnocephala is one of the plastode worms, with the rhabdocœls and heterocotyle as its allies. 4. Experimental Observations on the Organs of Circulation and the Powers of Locomotion in Pennatulids, by Edith M. Musgrave, D.Sc., late Honorary Research Fellow in the University of Manchester, with two plates. Mrs. Musgrave thinks that it is extremely probable that the main impetus of the circulating medium has its origin in the stalk, whilst spiral or twisting movements are due to the oblique musculature of the stalk.

Edinburgh Medical Journal.—In the December number Dr. James Ritchie deals with the influence of the tissues of the body on the incidence and the treatment of disease, emphasising the effect of temperament and the importance of considering the soil in which a germ grows as well as the germ itself. Professor Ed. Béraneck of Neuchâtel contributes a paper on the use of the form of tuberculin associated with his name, which has now gained a considerable degree of favour, and Dr. H. Torrance Thomson and Dr. Denis Cotterill write on the use of Scopolamine-morphine Narcosis, of which their experience is very satisfactory. A report on the Cytological Examination of the Discharge from a Suppurating Maxillary Sinus, by Mr. John W. Darling, tends to show that excess of lymphocytes is not necessarily here connected with chronicity of the inflammatory process, but that it is of bad prognosis for recovery without operative measures; the presence of streptococcus pyogenes is also unfavourable. Mr. J. W. Dowden records a case in which a glass tumbler was extracted from the rectum.

The Medical Chronicle.—An interesting paper by Dr. Judson S. Bury in the December issue of this review deals with the paralysis which may occur in chorea, and records a unique case in which the condition remained permanent. Dr. W. B. Warrington writes on some acute cerebral diseases, noting, among other things, a form of cerebral hæmorrhage met with in children and young persons as a complication of an insidious nephritis; and Dr. Thomas Milnes Bride compares the value of silver nitrate, protargol, and argyrol respectively in conjunctivitis, finding the first-mentioned drug the most effective, but advises previous trial of the others as being less painful.

L'Hygiène. Revue Mensuelle Illustrée. Vol. I., No. 1. Price 2fr. 50c.—This admirably got up review, which is published by Messrs. Goupil and Co. in Paris, and also at 25, Bedford-street, Strand, London, W.C., promises to be of great interest to the public as well as to all sanitarians, and if its production can be kept up to the level of the first number it will be a model of sumptuosity among periodicals. We are used to admirable illustrations of scientific subjects now and again in our monthly contemporaries, and, where the quality of paper allows it, many of them give us delightful reproductions in various forms of colour process also; but we know of no magazine appealing fairly directly to a scientific audience which sets such an example of artistic form, and we presume the intention is to persuade the public to be interested in matters which deeply concern the public. The editor-in-chief, Dr. Maurice de Fleury, has obviously laid down for himself no hard-and-fast rules as to how many illustrations he will provide, but in the first issue, at any rate, he seems to have determined to supply pictures with every article either of topical or historical interest. The contents of the first issue of *L'Hygiène* are varied, but the style of treatment is always simple. The editor writes a general introduction; Professor Landouzy follows with the arguments for a crusade against tuberculosis; Professor A. Gautier writes on alcohol; and Dr. Étienne Burnet on tobacco; Dr. Paul Strauss describes the wonderful work for the preservation of infant life done by the late Pierre Budin; Professor Chantemesse and Dr. F. Borel discuss cholera; Professor Bouchard writes on *arthritisme* as a definite diathesis; and the closing pages are largely devoted to gastronomics. To the medical man, however, the most interesting article will probably be one on insanitary houses, by M. Paul Juillerat, chief of the Hygienic Bureau of the city of Paris; and if the beautiful *format* of the magazine carries it into many homes we can imagine that Paris at large, as well as Parisian sanitarians, may benefit greatly by reading this essay. It is a quietly written but tremendous indictment of certain nests of insanitary buildings, sunless and pestiferous, which breed tuberculosis in the very heart of Paris. Especially is M. Juillerat clear about the widespread evil done by that nest of vile and fascinating streets which lie behind the church of Saint-Merri. The Rue Quincampoix is signalled out for mention as being a hideous focus of disease, but in all probability the same could be said of *les rues de* Venise, du Cloître Saint-Merri, Pierre-au-lard, Brise-Miche, and Taille-Pain—"un étrange lacis de ruelles baroques, sinueuses, étroites, calcinées comme par un incendie" (Georges Cain), which lie in immediate juxtaposition. M. Juillerat shows how this picturesque district is a regular breeding-ground of tuberculosis, and suggests forcibly by his revelations, if not in his actual words, that unless the city of Paris takes some large and concerted step—in other words, finds the money to compensate the owners and

pulls the whole district down—matters will go from the extremely bad to an inconceivable worse. For there is no onus on the landlords of these sixteenth and seventeenth century slums to improve their property, while, paradoxical as it seems, the worse the condition of the houses the greater the revenue they bring from the gross overcrowding that goes on in them. The very poor and the criminal classes, whose contributions make in the aggregate an enormous rent, crush into any wretched corner in these scabrous old mansions, and contrive somehow to pay for the dangerous shelter which they afford. A good case in this way is made out for the demolition of the district, and we must not be found lamenting in THE LANCET the approach of the day of destruction. None the less in these very streets Racine and Boileau took their *consommations*, Count Horn executed his famous assassination, the financier Law lived and ran the Mississippi scheme, and on all sides there is structural evidence remaining on the façades of many of the houses that they have sheltered in their day some of the best born of the French nation. All medical men must acquiesce in the necessity for pulling down a poisonous district, but, as the illustrations to M. Juillerat's article show, its demolition will deprive the artist of a vast number of ready-made pictures.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

OXYGENIA WATER.

(THE OXYGENIA SYNDICATE, 20, LAWRENCE-LANE, GRESHAM-STREET, LONDON, E.C.)

WE have already recorded our analysis of this water when we gave it as our opinion that the amount of oxygen present was too small to be of any advantage. The most we found was 1·39 per cent. We have since received further samples which showed a decidedly higher percentage of oxygen gas. Thus in one experiment we found that the gas given off when the cork was withdrawn from the bottle contained 3 per cent. of oxygen. In another experiment the amount of oxygen found was 6 per cent. The water has a very pleasant fresh taste and contains small amounts of sodium carbonate and sodium chloride. We are not aware of any attention having been turned to the therapeutic effect, if any, of drinking water containing oxygen under slight pressure. It is probably harmless if it does not do good. Oxygen, at any rate, is a cleanly agent.

GLYCERINE EXTRACT OF RED BONE MARROW.

(ARMOUR AND CO., ATLANTIC HOUSE, HOLBORN VIADUCT, LONDON, E.C.)

It is not difficult to show that this preparation is as described, a combination of fresh raw marrow with glycerine. That being so, it, of course, contains hæmoglobin, marrow cells, nucleins, and other well-known restorative agents. The extract has been exhibited with excellent results in wasting diseases, in anæmia, and so forth, while it has been used also satisfactorily in cases of weakness due to hæmorrhage. The extract may be usefully combined with nux vomica or with arsenic or other well-known tonic principles. The extract contains about 88 per cent. of dry substances which include glycerine. The spectrum of hæmoglobin was easily recognised.

BREVON BREAD.

THE BREVON BREAD CO., 38 AND 39, EDGECUMBE-STREET, STONEHOUSE, DEVON.)

We welcome the serious attention that is being given to the improvement of the quality of our daily bread. It is well known that in the past the demand for a loaf of an exceptionally white appearance has led to the supply of an impoverished flour. Brevon bread reaches a high nutritive standard, besides which it is of an easily digestible character, since 15·20 per cent. of it is soluble in cold water, part of the soluble matters consisting of proteins. The total proteins in the moist loaf amounted to 4·76 per cent. and the mineral matter to 0·83 per cent. The loaf had a good uniform texture and possessed an attractive flavour. We believe that particular regard is paid to the use of good materials in the making of Brevon bread.

SPADE COFFEE.

(BRANSON AND CO., LIMITED, CHASE WORKS, CLAPHAM, LONDON, S.W.)

Extract of coffee no doubt supplies a want, but it can rarely be compared favourably with the freshly made article. One difficulty in regard to the preparation of an "essence" is the preservation of the real coffee aroma which is due chiefly to oils. This difficulty has been satisfactorily met in the case of "spade" coffee, while evidence of its genuineness was found in the fact that there was present according to our analysis 0·41 per cent. of caffeine.

BUVO.

(BUVO, LIMITED, 26, ROSEBERY-AVENUE, LONDON, E.C.)

Buvo is the name attached to a tablet which is said to contain beef extract combined with the antiscorbutic principles of vegetables. According to our analysis "buvo" contains 2·8 per cent. total nitrogen, but a very small proportion of this appears to exist in the form of protein. We regard the food value of "buvo," therefore, as, relatively speaking, small, on account of nitrogen, although in addition it contains about 7 per cent. of fat. The most important constituent present, because of its amount, is the mineral matter, which was as much as 67·74 per cent., consisting chiefly of common salt, with some phosphates.

PHOSPHATED PETROLEUM EMULSION (TIPPEE).

(BASH AND CO., 35 AND 36, FOLEY-STREET, GREAT PORTER-STREET, W.)

This is a very well prepared emulsion containing, according to the statements of its makers, malt, iron, lime salts, glycerophosphates, and a small quantity of free iodine. Physicians will recognise the value of this formula in wasting diseases, particularly in phthisis and respiratory troubles. Owing also to the presence of well-known tonic constituents its use is suggested in anæmia, chlorosis, and nervous disorders. We proved the diastatic activity of malt extract and the presence of the constituents enumerated. Petroleum appears to be an excellent vehicle for these substances, but it has to be borne in mind that the hydrocarbon is not assimilated. It is stated that the petroleum used is of the highest quality having regard to the purpose for which it is intended.

ALL-MALT BEERS.

(DYMORE BROWN AND SON, LIMITED, ROYAL ALBERT BREWERY, READING.)

The fact that these beers are made from all malt and are satisfactory is an answer to the statement which is so often made that the use of substitutes, such as maize, rice, and sugar, is indispensable. The use of substitutes of course gives the beer permanent brilliancy, while when malt is exclusively used there is a tendency for the beer to become opalescent in the cold owing to the separation of proteins. Brightness, however, is usually recovered or maintained when the beer is kept at a normal temperature. The sample of ale sent to us by the above firm gave the following results of analysis: alcohol, by volume 5·78 per cent.; extract, 4·95 per cent.; mineral matter, 0·30 per cent.; and protein, 0·582 per cent. The stout proved to contain 7·40 per cent. malt extractives, including 0·66 per cent. of protein. These results are in perfect concordance with the statements of the

brewers that these beers are prepared exclusively from malt. The amounts, in particular, of protein and phosphates support this claim. It is further stated that for bittering and preservative purposes only hops are used.

New Inventions.

DROPPER AMPOULES FOR THE ADMINISTRATION OF CHLOROFORM.

A RECENT addition to the numerous contrivances for the administration of chloroform has been made by Dr. F. H. McMechan, anæsthetist to St. Mary's Hospital in Cincinnati, Ohio, U.S.A. This appliance, which he calls a dropper ampoule, is a hermetically sealed glass vessel containing about 30 grammes of chloroform. As shown in the illustration, it is provided with two extremely slender necks, the tips of which are broken off before use. The terminal neck, which is bent at right angles on itself near the extremity, is for the delivery of minute droplets of chloroform—from 180 to 200 to the drachm, while the lateral neck admits air. An aluminium file is supplied for the purpose of notching the glass before it is broken, but ordinary scissors will also answer the purpose. The anæsthetist can control the delivery partly by varying the inclination of the ampoule and partly by closing the lateral neck with the fore-finger. Dr. McMechan informs us that narcosis induced by means of the ordinary Esmarch mask (about six thicknesses of gauze) and the dropper ampoule is both rapid and safe. In this mode of administration the consumption of chloroform is relatively small, and the sealing of the glass container prevents loss by evaporation in hot climates. It is also claimed for this method that the stage of excitement and struggling is minimised by supplying the anæsthetic in minute drops, and that no cases of post-operative vomiting or delayed chloroform poisoning have been observed.

FIG. 1.

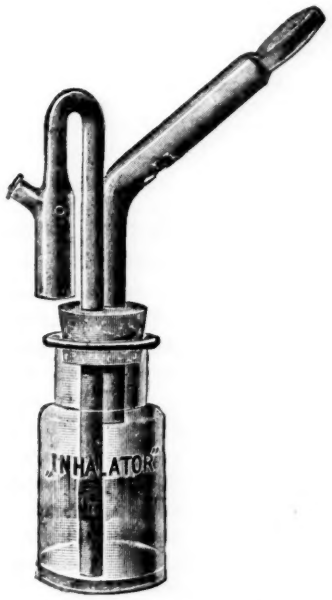
Preparation of the ampoule as a dropper.

FIG. 2.

Method of regulating the drip of the anæsthetic.

A NEW CHLORIDE OF AMMONIUM INHALER.

THIS simple and effective inhaler was brought to our notice at the meeting of the British Medical Association in Belfast in July last year, where it attracted considerable attention owing to the very fine smoke of ammonium chloride which it produces. As will be seen from the illustration, it consists of (1) a bottle which contains water with a few drops of strong ammonia; (2) a bent glass tube for mouth-piece; and (3) a bent tube dipping below the water and terminating in an open elongated glass bulb, into which is placed 8 or 10 drops of hydrochloric acid. On drawing air through the apparatus a chloride of ammonium smoke indistinguishable in appearance from tobacco smoke, so fine is it, issues from the mouth-piece. It seems remarkable that the ammonium chloride formed does not dissolve in the water. Part undoubtedly does, but a good steady stream of ammonium chloride smoke may be obtained just as easily as smoke from a tobacco-pipe. In addition, medicaments such as menthol or eucalyptus oil can be used with the ammonium chloride, and recently "lignosulfite" has been suggested as giving relief in asthma. "Lignosulfite" gives off sulphurous acid gas. The inhaler was submitted to us by Messrs. Hertz and Co., of 9, Mincing-lane, London, E.C.



THE HEALTH OF HASTINGS.—The quarterly report of the medical officer of health of the borough of Hastings shows that the births registered during the three months ending Sept. 30th, 1909, were considerably below those recorded in the corresponding quarter of last year. The number of male births was 131 and of females 122, making a total of 253, or 17 below the number of births registered in the corresponding period of 1908 and 41 below that of 1907. The birth-rate of 14·7 per 1000 of estimated population was less than in any preceding third quarter, the lowest previously recorded having been 15·3 in 1906. The gross number of deaths registered was 180, as compared with 152 in 1908, 182 in 1907, and 225 in 1906. Among the deaths were those of 24 infants under one year of age, being 95 per 1000 of registered births and 137 per 1000 of total deaths.

THE CARE OF BRIGHTON CHILDREN.—It was announced in THE LANCET of July 31st last that the Brighton education authority had just adopted in principle the establishment of a school clinic in the town. Some time has been taken up in securing suitable premises, but they have now been obtained, and the choice of the committee was ratified by the education authority on Dec. 21st. The premises are to be used as offices for the school doctor, nurses, and lady clerk, and also as the school clinic. For some time past the Brighton education authority has been playing quite a conspicuous part in its efforts for the rising generation, of whom there are no fewer than 18,000 on the school registers. School canteens have been at work for two or three winters and have been inspected by deputations from education authorities from various parts of the country; the blind children are taken care of in a special home and the deaf and dumb receive a special education. There is a school especially for mentally defective children accommodating 40 children. These places could be filled twice over and the authority is considering how they can meet the demand. Nothing has yet been done in the direction of open-air schools, but the advantage of such schools, as shown by the experiments conducted in London in the summer, is not lost sight of, while also it is quite possible that school nurseries or municipal crèches will be established.

THE LANCET.

LONDON: SATURDAY, JANUARY 1, 1910.

The Organisation of the Medical Profession: Some Lessons from Abroad.

THE Battle of the Clubs, under which heading we have often described the struggles of English medical men to obtain a fair remuneration for the contract practice which so many of them are compelled to adopt as the only way of dealing with their poorer patients, is not waged in England alone, but throughout the continent of Europe the necessity for professional organisation has become apparent in order to resist the popular demand that highly-trained professional men should perform an enormous amount of harassing, responsible, and often hazardous, work at a wage altogether disproportionate to their services, or even to their necessary expenses of life. On the continent, however, the battle has been joined on grounds somewhat different from those underlying the troubles of our own medical clubs, for it has arisen out of the operation of the laws compelling insurance against sickness upon all men with incomes below a certain standard, laws which, *ipso facto*, create an organised system of contract practice on an extremely large scale, and a corresponding necessity for an increasingly general and loyal professional organisation to resist any unjust demands made by the community under the instigation of the law. It has been suggested in many quarters that in certain political contingencies we may yet see a similar system of State insurance for the working classes enforced in this country and a review of the conditions which it has forced upon our foreign brethren is not without significance to us at home, although, as Dr. MAJOR GREENWOOD points out in another column, the fact that the medical men of another nation have devised a plan which at first trial seems satisfactory to themselves by no means ensures that a similar method of dealing with the sick poor would be desirable in our own country. The latest and worst example of the hardships with which European medical men are threatened comes from Austria, as anybody will remember who read our Vienna correspondent's recent account of the annual Aerztekammertag, or meeting of Medical Councils, held in that city at the end of last November. The meeting was chiefly concerned in discussing the scheme for general insurance against sickness which has been proposed by the Austrian Government, and which provides that every person earning less than 4800 kronen (£200) a year should be required to become a member of a Krankenkassa, or sick-club. Should this proposal be enacted, it is not hard to see that the incomes of private practitioners will suffer terrible encroachment, because not only will the clubs employ many fewer medical men to serve their members than now serve the same number of private patients, but they intend to pay totally inadequate salaries for the work which their officers will have to do. In fact, for a salary of from £100 to £200 a year the medical staff will be expected to look after the health of from 1000 to 5000 patients, a proposition which hardly requires comment. We hope our Austrian brethren will be able to bring enough pressure to bear on the Government to obtain the reduction of the wage limit for compulsory insurance to £100, the object at which they are aiming. If they are successful, they will keep at least 73,000 wage-earners and their families who would otherwise come under the new law as possible private patients. There are said to be 2000 medical men in Austria who cannot make a living, and it is small wonder that the need for effective organisation is urgently apparent to the medical profession in that country.

In Germany, no less than in Austria, the economic position of the general practitioner is becoming more and more difficult, so that very energetic action is needed to save a not inconsiderable number of medical men from actual starvation. Here action was initiated by Dr. HARTMANN of Leipsic some eight years ago. He founded a fighting medical union entitled "Der Verband der Aerzte Deutschlands," but more familiarly known as the Leipziger Verband. The members pay annually £1, but they are raising a fund of £25,000. Not only have they organised many strikes and found the means of financially compensating the victims, but the pressure exercised has been great enough to effect an affiliation with the Deutscher Aerztevereinsbund, an older and more conservative federation. The greatest struggle has taken place at Cologne, and we sent our Special Commissioner to study the conditions on the spot. Under the compulsory insurance law the different trades form sick funds and each member pays 4*s*. to 5*s*. a year for medical aid. There are about 400 medical practitioners at Cologne, and about 80 of them were employed by the local sick funds to attend to 120,000 workmen and 20,000 families. At five members to a family this makes a population of about 220,000. The families pay 15*s*. per annum. On these terms 300 medical practitioners were willing to attend these people, and the law, which compels everyone with less than £100 a year to insure against sickness, leaves the patient free to select the medical adviser he may prefer. In 1904 a general medical strike was declared, and the 80 medical officers in the employ of the sick funds administration gave up their position so as to establish the principle of the free choice of medical adviser. The sick-clubs imported 32 to 35 other medical men, but the law stipulates that no medical officer shall have more than 2000 members of a sick-club on his list, so the clubs had to give way, a five years' agreement was signed with the local medical union, and the free choice of medical adviser established. But now the five years are terminated and the sick-clubs refuse to renew the agreement. The struggle has been renewed, and as the clubs have on this occasion imported over 60 medical men, it is likely to last a long time, while serious doubt is thrown on the possibility of the previous tactics being again employed with success.

In France also the struggle is on the same lines—the freedom of choice by the patient, as was explained in a recent article in our columns. Last year this was raised

mainly in regard to accidents to workmen. The insurance companies sought to impose on the medical men they employed, and these were accused of minimising the cost and length of treatment. On the other hand, the practitioners chosen by the injured workmen were accused of exaggerating the harm done by the accident. The law and the medical unions, however, successfully maintained the right of free choice, while giving to the insurance companies and the responsible employers the right to appoint experts to see that there was no abuse. This year the struggle has been more especially devoted to the application of the law of 1893, which gives the poor the absolute right to free medical aid in case of sickness. The law, however, does not say how this relief is to be given, and leaves the local authorities to decide as to the best method of application. Fortunately, the medical profession, through its local unions or syndicates and its national federation of syndicates, has from the very first clearly stated how the medical poor relief should be organised. There should be a minimum poor-relief tariff, and the mayor of each district should be obliged to place on the list any fully qualified practitioner who is willing to attend on the poor on these conditions. The poor, on their side, would have the right to choose from this list whomsoever they might prefer. The payment, of course, would be made directly by the municipality to the medical practitioner. Out of the 86 departments or counties of France, 63 have accepted the principle of free choice of medical adviser, though the scale of payment varies somewhat. In a few districts the local authorities have attempted to establish a system like club practice in England. Instead of paying a fee for each time advice is given, the municipalities pay a small sum yearly for each person inscribed on a practitioner's list as entitled to free medical relief. This creates a staff of medical officers who thus become municipal functionaries. The medical unions strongly object to this tendency to convert medical men into State or municipal salaried employés. A medical practice should, they say, be created by the skill and attention of the practitioner, instead of being given to him as a reward for services rendered to the political party in office. If the principle advocated by the medical unions in France, and outlined briefly above, is firmly established the medical profession will no longer have to do the enormous amount of gratuitous work that now falls to its lot. All practitioners will then receive at least the minimum fee. If the medical attendant finds the patient cannot or will not pay, he may inscribe his name on the free list at the town hall and claim the money from the municipality. If the patient is not so very poor, then the local authority can recover the money in the same way as it collects the taxes. The money for this medical relief is provided out of the local revenue and the county revenue, supplemented by subventions from the State.

If we were to continue the discussion of the conditions of contract practice in other countries, in most of them—as regards Italy especially—we should have to tell the same tale of hard work and inadequate payment for the rank and file of the medical profession; but we have given sufficient instances to show that British medical men are not alone in their professional disabilities, and that their need of coöperation is no greater than is imposed upon their European brethren. Yet our readers know well enough that their own necessity for dignified organisation was never greater than in the present state of Poor-law upheaval and its possible revolutionary consequences to many thousands of medical practitioners.

The Registrar-General's Report.

IMPORTANT changes have recently taken place in the *personnel* of the three General Register Offices of the United Kingdom. In the course of the year just closed a new Registrar-General and a new Superintendent of Statistics have been installed at Somerset House, whilst for Scotland and Ireland respectively new Registrars-General have entered upon their duties—the vacancy in the latter case having been filled by the appointment of a member of our own profession, Sir WILLIAM J. THOMPSON, physician-in-ordinary to the Lord-Lieutenant of Ireland. We are indebted to Mr. BERNARD MALLET for a copy of his first annual report as Registrar-General of England. This document, which bears the joint signatures of the Registrar-General and the Superintendent of Statistics, is the seventy-first of a remarkable series, the importance of which in relation to medical science generally, and as the basis for sanitary legislation and administration in particular, is universally recognised. We discuss now only a few of the more salient points of the report, as a detailed examination of its contents will be necessary, together with such comments on the incidence of mortality and its causes as will be helpful to those working in public medicine.

In the more noticeable features of the vital statistics of 1908 the Registrar-General takes occasion to foreshadow certain changes in form and method of presentation which he wishes to introduce. Among these he refers at length to some important modifications which have been urged on the department by persons engaged in public health administration, and which if adopted would greatly increase their value for sanitary purposes. Hitherto the official statistics of Somerset House have been limited to registration districts and sub-districts, the areas adopted in 1837 being those prescribed by the Act which authorised the partition of England into unions for Poor-law purposes. The Public Health Act of 1875 provided for a novel partition of the country into urban and rural administrative areas which, unfortunately, were seldom coterminous with the older union areas of the Poor-law, so that the statistics of births and deaths, which under existing arrangements are tabulated for the union areas alone, are practically useless for the administrative purposes of the public health areas. The assimilation of these areas is, as we have frequently urged in these columns, a consummation greatly to be desired; and we have no doubt that the sanitary authorities of the country will appreciate the endeavours which the Registrar-General is making with this purpose in view as far as statistics are concerned. Ever since the creation of sanitary administrative areas under the Public Health Act there has been a strong demand for detailed vital statistics relating to those areas in particular. In view of this demand the Registrar-General has now set forth the nature

and extent of the obstacles standing in the way of making the areas for registration coterminous with those for administration, and he tells us that these are too serious to be overcome by anything short of a new Registration Act. Among these obstacles the financial difficulty stands out as of the first importance. In present circumstances the local Poor-law guardians pay the fees for registration of births and deaths. They receive the contributions of the registrars under the Poor-law Officers' Superannuation Act and are responsible for the payment of the pensions of registrars on their retirement. In any change of system it would be necessary to provide compensation for those registrars whose fees and prospective pensions were adversely affected thereby; and, further, it would be necessary to adjust the terms on which the financial responsibilities of the old authorities should be taken over by those who were in future to pay the fees and pensions. "But it does not follow," says the Registrar-General, "that because, short of such legislation, registration statistics must continue to be collected for registration and not for administrative areas, their publication need necessarily also retain this form." In other words, the area of collection does not necessarily govern that of presentation. Provisional investigation of the question from this point of view has led him to the conclusion that it may eventually be possible to redistribute the returns, collected as heretofore, according to administrative main areas, though it will hardly be practicable to publish separate statistics for the smaller ones. With respect to the general bearings of this question Mr. MALLET apparently harmonises in opinion with his predecessor, whose views thereupon we have recorded,[1] but he goes on to discuss the gravity of a new departure of this kind. Accordingly, he instances a difficulty which may not be apparent at first sight, but which becomes serious here because of the necessity of securing identity in the methods of compilation of statistics for national and for local use. There would obviously be grave objections to the publication of national and local statistics for the same areas but compiled by different methods and therefore presenting avoidable discrepancies. In order to secure the presentation of trustworthy rates of mortality, as well as the coördination of the national statistics with those locally compiled by medical officers of health under the direction of the Local Government Board, it would be necessary that deaths occurring in public institutions should be assigned to the place of previous residence, instead of being included, as at present, in the mortality of the district in which each institution is situate. The coördination of the national and local lists of causes of death and of the rules to be observed in the allocation of these causes is an important matter which is complementary to the rearrangement of recorded facts already alluded to, and is one that demands the serious consideration of all concerned.

For ourselves, we see no reason why, with a suitably increased staff at the central office, the local statistics of birth and mortality for at any rate the principal administrative areas of England should not be prepared and issued periodically to the local authorities from Somerset House. We have no doubt that such an arrangement would be welcomed by medical officers of health, especially in the rural districts, for the time of these officers would in this way be set free for inspectorial and other preventive work instead of being occupied unduly as at present in the preparation of local statistics, for the due correction of which they possess neither the appropriate means nor the necessary leisure. One last word. We have for many past years voiced the complaint of medical officers of health that the reports of the Registrar-General lose much of their interest, as well as of their value for administrative purposes, because of what appears to be avoidable delay in their publication. We therefore desire to congratulate Mr. MALLET on the circumstance that for the first time during the last 20 years the report of the Registrar-General has been presented within the year succeeding that to which the figures relate. As Mr. MALLET entered on his present duties only so recently as the middle of last year he justly attributes this result solely to the assiduity of the statistical staff of his department.

[1] THE LANCET, Feb. 6th, 1909, p. 406.

Dermatology in Relation to General Medicine.

WE publish in another column a note from an esteemed correspondent in which he points out briefly that dermatology plays no recognised part in the education of the medical student. Now, it is a fact that, although ROBERT WILLAN, who first caused the subject of dermatology to have a separate existence, published his book on cutaneous diseases in 1809, dermatology as a special subject continues to hold a somewhat vague position. The study of diseases of the skin has advanced to a wonderful degree of completeness and extent, and the histology of these diseases has been very fully investigated, yet dermatology can hardly be looked upon as one of the compulsory subjects of the medical curriculum. On the other hand, cutaneous symptoms are often extremely important in the diagnosis of conditions with which every medical student is bound to be familiar. So far as we are aware, no British examining body insists on an attendance at a course of lectures on dermatology, or even on attendance in the out-patients' department devoted to this subject, and though a question on diseases of the skin may from time to time find its way into a medical or surgical examination paper, yet it usually appears to be out of its natural sphere, while its presence is generally resented by the candidates, who, not being required to be "signed up for dermatology," consider that it is hardly fair on the part of examiners to ask them questions on the subject. The only examining body as far as we know which has ever devoted any special attention to skin diseases is the University of London, for until recently candidates were shown six cases of diseases of the skin at the final examination for the degree of Bachelor of Medicine; these they were required to diagnose in writing. But now this recognition of the claims of dermatology has been removed, and the student is left to acquire as much or as little familiarity with skin diseases as he chooses without much risk of his examiners inquiring into

his store of knowledge. The question naturally arises, therefore, which lies at the bottom of our correspondent's letter: Are diseases of the skin so important that they should form a compulsory part of the medical curriculum, and that students should produce evidence of having attended a dermatological clinic and lectures, and that examinations should be conducted in the subject?

Are there any reasons why a competent knowledge of dermatology should be required of all seeking to practise medicine? It is important in this connexion to bear in mind that affections of the skin may be divided into those such as ringworm, in which the skin and its appendages are primarily affected, and those in which changes occur in the skin as a result of pathological conditions elsewhere in the body. Therefore, this two-fold division of cutaneous manifestations makes it necessary that diseases of the skin should be looked at not only from a dermatological standpoint, but from the point of view of general medicine. The mistakes in the diagnosis of skin affections which occur in practice are indicative of the importance of this. We have heard of cases where a seborrhœic dermatitis in a child has been mistaken for a manifestation of congenital syphilis, and of another where anti-syphilitic treatment was prescribed for an early scarlatinal rash. Small-pox has been confounded with non-infective pustular disorders with unfortunate consequences. Similar errors of diagnosis are of not infrequent occurrence, and they suggest the desirability of more regular and systematic teaching of dermatology. The fact that attendance at a fever hospital is required of every medical student indicates that the authorities appreciate the need for a rapid recognition of the acute infectious diseases, but it must not be forgotten that many skin affections by their interference with school life and its work, and by the anxiety and worry which they produce, often lead to an amount of disturbance more distressing to the individual than is brought about by one of the infectious fevers, although these are more serious to the community. The recent appointment of school medical officers has done something to accentuate the recognition of the importance of a knowledge of diseases of the skin, and we believe that in the appointments made some attention has been paid to evidence of a special study of dermatology, but the fact that the inspecting nurses now at work in so many schools are credited with a power of diagnosing many cutaneous affections militates somewhat against the idea that those who are responsible for public education in London appreciate the importance of the problems before them. It is difficult, indeed, to overrate the value of a competent knowledge of dermatology. Though existing as a special department in most hospitals, it should be recognised that dermatology is merely a special study of skin manifestations, in some cases at least limited to the skin, but in more still associated also with some other important part of the body. In the epidemic of arsenical poisoning which occurred a few years ago from the accidental presence of arsenic in beer the attacks were supposed for long to be examples of alcoholic poisoning, and it was not until the pigmentation of the skin was recognised as symptomatic of arsenical poisoning that it was discovered that the whole epidemic was produced by arsenic. This is a striking instance, but many others of equal importance could be quoted to show the great value of the early recognition of skin changes. The prompt appreciation of a cutaneous manifestation may lead to the early diagnosis of some important affection of another organ, and may do much to enhance the probability of successful treatment, because the diagnosis can be made before serious pathological changes have occurred. The irritation produced by diabetes has many times led to a recognition of that disease when otherwise weeks or even months might have elapsed before this diagnosis was made. We do not labour this point, enough having been said to show that a working knowledge of dermatology will increase greatly the diagnostic power of every practising physician and surgeon.

What, then, should be done? It is not possible with the recent increase of the scope of the medical examinations instituted by most of the examining bodies to suggest that a special paper on dermatology should form a part of all qualifying examinations. But we are definitely of opinion that steps should be taken to require that every student should attend regularly in the out-patient department devoted to dermatology attached to his medical school, for in that way it should be possible for him to become well acquainted with all the commoner cutaneous manifestations and with many of those which are less frequently seen. The knowledge so gained should be tested at pass examinations at least so often that no student could present himself with a feeling of security unless he had some knowledge of this branch of pathology, and if he were required occasionally to diagnose a case or two of diseases of the skin so much the better. This could be easily managed by presenting to him cases in which the general surgical or medical state was testified to by the cutaneous lesions. We do not venture to urge any addition to the work of the over-burdened student of medicine, but the time has come when some more definite recognition should be made by the examiners of the claims of dermatology. Of all special departments in medicine it is perhaps the most general, and there is none the study of which would repay so well further notice in the curriculum of the student.

Annotations.

"Ne quid nimis."

THE PHYSICAL FITNESS OF LONDON COUNTY COUNCIL EMPLOYEES.

LARGE as is the staff of the London County Council, it might at first sight be thought that their physical condition was a matter of relatively parochial concern. But when regard be had to the fact that the efficiency of London's fire brigade is largely a question of the physical fitness of its *personnel*, and that the question of acuity of vision and absence of colour blindness amongst the tramcar drivers is a matter of great importance to a large section not only of the metropolitan but of the provincial population as well, the subject assumes another aspect, one indeed of national importance. The recently issued report of Dr. R. J. Collie, medical examiner to the London County Council, relates to the work of the five years ended July 31st, 1909, and consequently its figures have a higher value than

would be the case if they related to one year only. At the general entrance examination as to physical condition, 10·56 per cent. of the candidates were rejected for one or another cause, and some of those who passed were allowed to do so "under special conditions"—i.e., they were admitted with some acknowledged defect on the distinct understanding that no superannuation money would be paid were they to leave the service on account of such defect. But the Workmen's Compensation Act, 1906, necessitated the discontinuance of these special circumstances. Of the candidates rejected, 53·81 per cent. were rejected owing to defects of vision; 11·21 per cent. because of the presence of albumin in the urine; nearly 8 per cent. for heart disease; and nearly 7 per cent. for hernia. Varicose veins and syphilis accounted for 4·71 per cent. and 2 per cent. respectively. Some interesting figures are furnished with regard to the eyesight of 2703 tramway drivers. Of these, 217 were rejected, 67·74 per cent. having defects of acuteness of vision; 29·96 were colour blind; and 2·30 per cent. suffered from squint. The examination of these candidates is rightly a very searching one, since in 1904 before the routine examinations were instituted, Dr. Collie was asked to examine 73 tramway drivers and of this number 13 were found to be wholly unfit for the service. Dr. Collie finds no difficulty as regards the question of wearing glasses. No objection is apparently raised with respect to persons engaged in sedentary occupations, but in the matter of firemen, captains of river steamers, deck hands, and tramway drivers aids to vision in this sense are not allowed. In all these cases the glasses might, Dr. Collie thinks, instantly become dimmed either by steam or rain. This is no doubt true, but we are wondering whether the German infantry, many of whom wear glasses, suffer much inconvenience from rain during the manœuvres. Obviously rejection of the German recruit for purely visual defects would materially reduce the numerical strength of the German army. In dealing with the question of accidents, Dr. Collie remarks that malingering is much more common in connexion with these conditions than with disease, probably, he thinks, because of the Council's legal liability. He points out, too, that the injury inflicted on real sufferers by shammers is so great that the malingerer deserves no mercy, and as an illustration of this vice, for such it is, he refers to the fact that no less than 7 of 22 cases of malingering occurred in one department about the time when that department was closed. Some instructive instances of malingering are provided by Dr. Collie, and it is clear that the decisive manner with which he deals with them is gradually reducing their number. In connexion with this question Dr. Collie pays an indirect and well-deserved tribute to the men of the London fire brigade, who, as he says, are constantly expected to risk their lives in the execution of their duty—and they do it. As an inducement and as a reward the firemen receive *full* wages and free medical treatment when ill from whatever cause, and they are entitled to a very substantial gratuity or pension if permanently incapacitated. It is, therefore, very creditable to these servants of the public that they do not tend to exaggerate the results of accidents, and during the period referred to in the report before us there were only two cases of malingering. Hernia is common amongst the fire brigade men, a fact which Dr. Collie attributes to fatty degeneration of the abdominal muscles owing to the long periods of inactivity between the fires. The firemen have, it appears, too little systematic exercise, and Dr. Collie suggests the provision of gymnasia for them. With reference to the subject of illness other than that caused by accidents, it is noticeable that amongst the men who work in the sewers there were but two cases of enteric fever, and that amongst the employees generally there is very little alcoholism. There were 23 cases of tuberculosis or pleurisy amongst the employees in the parks and six in the main drainage service, and as regards the former Dr. Collie observes that the healthy life of the parks does not appear to avail the employees since their return for phthisis is comparatively the highest. He wonders whether the tubercle bacillus is deposited in the parks by the phthisical patients of the metropolis, and in this fashion finds its way as dust to the lungs of the park-keepers. This appears to us to be somewhat improbable. Were it otherwise, places such as Davos and St. Moritz would be decimated with the disease, and the employees in consumption hospitals would but rarely escape. As a matter of fact, neither of these things occurs and pulmonary tuberculosis under the conditions which obtain in the parks must surely be regarded as practically a non-communicable malady. Nervous diseases, and especially what is termed neurasthenia, appear very common amongst the employees, and Dr. Collie thinks that the subject requires further investigation. It is due, in his opinion, partly to overwork and stress of competition, and in his view overtime and overwork should be discouraged in the service generally.

THE BIONOMICS OF A HOUSE-FLY.

AN interesting article on the structure, development, and bionomics of the house-fly is contributed by Dr. C. Gordon Hewitt, late lecturer on economic zoology in the University of Manchester, to the December number of the *Quarterly Journal of Microscopical Science*. The fly with which our readers are most familiar is the Musca domestica of Linnæus. This species is most common in a warm room in which are scattered the remains of food, but its place is taken in other rooms of houses by the small house-fly (Homalomyia canicularis), which may even predominate over the Musca domestica, but belongs to a different group of calypterate Muscidæ, the Anthomyidæ. In country houses a third fly, the Stomoxys calcitrans, is not infrequent, and there are yet others. Dr. Gordon Hewitt found that out of a total of 3856 flies caught in different situations, such as restaurants, kitchens, stables, bedrooms, and hotels, 87·5 per cent. were Musca domestica, 11·5 per cent. were Homalomyia canicularis and the rest were other species, such as Stomoxys calcitrans (which is not properly a house-fly), Muscina stabulans, Calliphora erythrocephala, and Anthomya radicans. In India a fly closely resembling the M. domestica exists in enormous numbers. The method of disposal of the night-soil in India is to bury it in trenches about one foot or less in depth; and from one-sixth of a cubic foot of soil taken from a trench at Meerut and placed in a cage 4042 flies were hatched. There are two species of blow-fly in this country, one of which is the Calliphora erythrocephala, the other, which is less common, is Calliphora (Musca) vomitoria; the females of the former deposit their eggs, which may number 600 from a single female, on any fresh, even living, flesh or decaying meat. Dr. Gordon Hewitt found that at 23° C. (73·5° F.) the eggs hatched in from 10 to 20 hours after deposition. The larvæ underwent the first ecdysis from 18 to 24 hours after hatching; the second moult took place 24 hours later; the third larval stage lasted six days, the whole larva life being passed in from seven and a half to eight days. Fourteen days were spent in the pupal state and development was completed in 22. It was found that abundance of appropriate food hastened the development of the larvæ, and Dr. Gordon Hewitt quotes observations showing that the adult Musca domestica can withstand a temperature of − 10° C. The ova are deposited in dark crevices and they develop more quickly under blue or violet glass than under

other colours. During the winter months the adults become torpid and a large proportion are attacked by a fungus, the Empusa muscæ. Dr. Gordon Hewitt found them from one and a half to two miles from any house or likely breeding place and has captured them at a height of 80 feet above ground. The Musca domestica does not appear to be able to regenerate a broken or lost leg or wing unless it has very recently been pupated. Besides the Empusa fungus, spiders and other arachnids, wasps, and predatory beetles account for much thinning of the multitudinous ranks of flies. In regard to the agency of the house-fly as a disseminator of pathogenic organisms, though it has no instrument that is capable of perforating the skin and effecting the inoculation or direct introduction of germs, nevertheless its habits render it a very potent factor in the dissemination of disease by the mechanical transference of the disease germs. As human excreta contain the bacilli of typhoid fever, and at the same time attract flies which, after settling upon such material, alight upon articles of food and even upon the lips of man, it is easy to see how flies can contribute, in camps especially, to the propagation of this form of disease. Dr. Hewitt quotes from Howard (1900), who, referring to an American camp where no effort was made to cover the fæces in the latrines, says: "The camp contained about 1200 men, and flies were extremely numerous in and around the sinks. Eggs of Musca domestica were seen in large clusters on the fæces and in some instances the patches were two inches wide and half an inch in depth, resembling little patches of lime." Striking evidence of the part played by flies is afforded by the fact that in the officers' quarters, which were screened off, the cases of typhoid fever were much less numerous than in the tents of the rank and file, and also by the fact that the number of cases was reduced when attention was paid to cleanliness. What holds good of typhoid dissemination by flies applies also to other conditions.

FOOTBALL IN THE UNITED STATES.

"STATISTICS were compiled a short time ago showing that football had been responsible for 30 deaths and for 216 cases of serious injury during the season up to date." Thus writes an American correspondent, but as he does not give the date we do not know exactly over how long a period this list of casualties is spread. But however long it may be it seems to us to be appalling. In 1901 statistics in regard to accidents at football in the United States were first gathered and the casualty list quoted above is the largest since the collection of statistics and most probably the largest ever known. Of the 30 killed, 8 were college students, 20 were pupils of high schools, and 2 were members of athletic clubs. Of those injured, the list included 25 injured internally, 19 cases of concussion of the brain, 19 cases of broken ribs, and the same number of dislocated ankles. 15 legs and 9 arms were broken, while there was a long and formidable list of less grave injuries. When the fact is taken into consideration that the length of the football season in the United States is not two months and that the game is only played by the universities, colleges, and some of the schools, the figures denoting the accidents during the past season will take on an even more serious aspect. The general public of the United States is aroused at the recent fatalities and demands have come from all parts of the country that the game as now played be either abolished or reformed in such a manner that serious accidents be rendered if not impossible at all events of rare occurrence. A few universities have given up the game, Columbia University, New York, has done so, and the Board of Education of New York has prohibited the playing of American football in the schools under its control. The *New York Medical Record*, referring to the matter in an editorial, Dec. 4th, 1909, recognises that public sentiment is strongly against a continuance of the game in its present form, but also recognises the difficulty of making changes which, while preserving the salient features of the game, will rob it of its most dangerous points. A few years ago alterations were introduced which it was thought would have the desired effect. After the introduction of these reforms for two or three seasons there were fewer accidents, but as coaches and players learned methods of avoiding the new rules fatalities became more frequent than before, until in the past season they have reached their climax. A proposition has been advanced that a rule be adopted to enable the referee to order from the field any man whom he deems to be physically incompetent. The American game of football is so different from the games played in Great Britain that there are scarcely any points of comparison, and therefore it is very difficult for English readers to comprehend the numerous obstacles in the way of a radical and an effective reform. While American football is strenuous and even brutal, it is more seriously strategic than British football. Football in Great Britain is a game, and nothing more, leaving out the wage question; football in America is a game to a certain extent, but it more closely resembles a stern fight, in which both sides leave no stone unturned to win, and if the object can only be attained by putting opponents out of action by rendering them *hors de combat*, then this course is pursued. However, the general public in the United States appears resolved to insist upon changes in the game tending to make it less dangerous to life and limb, and as many of the heads and professors of universities and colleges are of the same mind there is little doubt that reforms will be introduced.

SYMPTOMS RESEMBLING "THE SERUM ILLNESS" FOLLOWING PARACENTESIS THORACIS.

THE injection of the serum of another animal into man, as in the antitoxin treatment of diphtheria, is liable to be followed by certain toxic symptoms—an erythematous or urticarial rash, arthritis, and pyrexia. They have been termed "the serum illness" and by foreign writers the "maladie du sérum" and "serumkrankheit." At a meeting of the Société Médicale des Hôpitaux of Paris on Oct. 29th M. F. Besançon and M. S. L. de Jong reported a case of paracentesis thoracis which was followed by similar symptoms, apparently due to absorption of the patient's own serous fluid. A man, aged 29 years, was admitted into hospital on March 25th, 1909, complaining that he had been attacked four days previously with rigors, fever, and a painful cough. He had been losing flesh for a month. At the base of the left lung there was dulness, and slight pleural friction was heard. Exploratory puncture yielded lemon-coloured fluid. Cytological examination of this fluid showed a predominance of lymphocytes, with a few polynuclears. The temperature oscillated about 100·4° F. On April 3rd the effusion was very great, and the dulness extended all over the left chest. Paracentesis was performed and yielded a litre of lemon-coloured fluid. It contained lymphocytes, and on direct examination showed no bacilli. Ten cubic centimetres of the fluid were injected subcutaneously into two guinea-pigs and caused death in three days. The patient was relieved by the paracentesis, and subcrepitant râles rapidly appeared at the left base. But on the 15th new symptoms developed: he complained of pains in the joints and peri-articular tendinous attachments of the lower limbs. There was also a little albumin in the urine. On the following days the

pains and albuminuria increased. On May 9th there were œdema of the face and lower limbs, pains in the lumbar region, and albuminuria. The wrist- and ankle-joints were painful and slightly swollen. At the site of the effusion "signs of pleuro-pulmonary congestion persisted." On May 13th the articular pains began to diminish. At the apex of the right lung slight dulness, harsh respiration, and some subcrepitant râles were found. The albuminuria gradually disappeared and the patient was discharged on July 12th with only a trace of the disease at the base of the left lung—diminished vesicular murmur and slight dulness. During the period of the symptoms following the paracentesis the blood showed transitory but marked leucopenia and eosinophilia, and the temperature was about the same as before the paracentesis (100·4°). What was the nature of the symptoms following the paracentesis? It might be suggested tnat they were due to an attack of acute rheumatism. But the absence of any rise of temperature and the leucopenia exclude this hypothesis. Acute rheumatism is attended by a leucocytosis of from 10,000 to 15,000. The symptoms remarkably resemble those of the "maladie du sérum." In this condition the onset on the twelfth day after injection, the arthralgia, œdema, albuminuria, and leucopenia are all described. Only the eruption was wanting, but this may also be absent in the "maladie du sérum." Evidently the symptoms were due to absorption of toxins contained in the pleural effusion which acted like a heterogenous serum. Its toxicity was shown by the fatal effect produced by the injection into guinea-pigs.

MICHAEL SERVETUS.[1]

AN address, which Professor Osler confesses has already done double duty, once as given at the Johns Hopkins Medical School Historical Club and once as an extension lecture at Oxford, has just appeared in pamphlet form. The story of Servetus is one of the most tragic in the history of so-called religious controversy. A heretic himself, holding views similar to those of Nestorius, he was burned alive in Geneva, that home of free thought and liberal opinions. The death, though not the manner of it, was with the consent, if not at the instance of, Calvin, whose plea for freedom of conscience did not, as was customary in the sixteenth century, extend to other people's conscience. But the great fact in the life of Servetus, which makes him so interesting a figure to medical men, is his recognition or discovery of the pulmonary circulation. His account of this did not appear in a medical work but in his theological treatise, "Christianismi Restitutio," and he used it in discussing the nature of the Holy Ghost. In his description, which is quoted at length, we find, says Professor Osler, first, the clear statement of the function of the pulmonary artery; secondly, the transmission of the impure or venous blood through the lungs from the right side of the heart to the left; thirdly, the recognition of an elaboration or transformation in the lungs, so that with the freeing of the blood of "fuliginous vapours" there was at the same time a change to the crimson colour of the arterial blood; and fourthly, the direct denial of a communication between the two bloods by means of orifices in the septum between the ventricles. The date of the appearance of the "Restitutio" was 1553, but Servetus had been engaged on the work for some years previously. Despite his ideas on the pulmonary circulation, Servetus still believed the left heart and the arteries to be the seat of the vital blood and spirits. Professor Osler's paper is worthy of study by all those who take an interest in the history of medicine, and it is made the more valuable by a reproduction of pages from the "Restitutio," of title-pages of various books written or edited by Servetus, and by other illustrations dealing with him.

[1] Michael Servetus. By William Osler, M.D., F.R.S., Regius Professor of Medicine, University of Oxford. London: Henry Frowde, Oxford University Press. Pp. 35. Price 1s. net.

HOUSING IN WALES.

IN THE LANCET of Dec. 11th our Wales correspondent referred to an association recently formed to promote the healthy housing of the Welsh people. We have since been given further information concerning the Welsh Housing Association, the offices of which are at 9, Temple-chambers, London, E.C. The functions of this association appear to be investigation of the state of housing in Wales and its borders and the collection of observations on kindred matters, and action through other existing bodies by means of lectures and federated local associations, with the view of securing healthy homes and corporate amenities for the improvement of the physical, moral, and economic well-being of the inhabitants of Wales. With the Chancellor of the Exchequer and the Bishops of Bangor and St. Asaph as members both political and sectarian questions are excluded, and the circular before us fittingly concludes thus—"To that great end, then—an efficient nation—do we desire that Wales should set her house in order, and give her humdrum, as well as her brilliant, sons and daughters those moral, social, and physical advantages that accompany the properly directed *home* life of all peoples. Greece was great when well housed, and Wales will be great when, all else being equal, her people of all ranks can say: Behold, we have habitations whose foundations, if not of precious stones, are laid on approved sanitary principles: we have waters which, if not of crystal, are pure and plentiful: we have streets, if not of gold, yet are free from defilement, and which make our hamlets and towns to appear illumined by the light of science, and where no fell disease can dim their lustre or sadden their homes." Amongst the medical men prominently associated with the movement are Mr. Evan Jones, D.P.H., Mr. D. L. Thomas, and Dr. Owen Pritchard, and the list includes men of considerable eminence in other professions. We are in sympathy with any movement for the improvement of the housing of the people, and we wish this public-spirited association all success in its endeavours.

THE DIAGNOSTIC SIGNIFICANCE OF ALLOCHIRIA.

IN a recent review[1] there appeared a suggestive contribution from Dr. Ernest Jones of Toronto to the difficult subject of allochiria. By this term neurologists have commonly understood the false reference of a point stimulated to a corresponding spot on the opposite side of the body. Aided, however, by an exhaustive analysis of certain clinical examples which have come under his observation, Dr. Jones has made out a clear case for the revision of an inadequate nomenclature. It would appear that under the name of allochiria two fundamentally different conditions have hitherto been confounded. A patient may be unable to determine the side of a given cutaneous stimulus because of a general defect in localisation—alloæsthesia—or because of a specific defect which is independent of any error in localisation, and this condition should be called dyschiria. It may be defined as a state in which there is constantly either ignorance or error in the patient's mind as to the side of given stimuli, quite independent of any defect in sensorial acuity or in the power of localisation. Dyschiria, further, may be divided into three stages: achiria, in which the patient has no knowledge of the side of the stimulus; allochiria, in which he refers the stimulus to the corresponding point on the opposite side;

[1] The Review of Neurology and Psychiatry, August and September, 1909.

and synchiria, in which he refers it to both sides. According to Dr. Jones, allochiria is the only stable variety of dyschiria, achiria and synchiria being temporary and transitional stages. He considers allochiria, or rather dyschiria, to be entirely characteristic of hysteria, and to be explicable more easily from this than from any other point of view. The anatomical hypotheses concerning allochiria are contradicted by all the facts bearing on the subject and should be discarded. In dyschiria we are dealing with a form of psychical dissociation or disaggregation such as lies at the basis of hysteria according to Freud, Janet, and others. The feeling of "sidedness" is dissociated from other psychical groups in which are stored our memories of cutaneous stimuli of differing sorts. If there is a complete separation of this association we have achiria; if an abnormal association is formed between these mental processes, these "images" of the different parts of our body arising from a complex of memories and the complemental feeling of sidedness (called by Dr. Jones the "chirognostic feeling"), then we have allochiria. In a word, allochiria occurs as the result of the cleavage of certain normally associated mental processes, and this cleavage is characteristic of hysteria *par excellence*. To those who are unfamiliar with the subject some of the clinical illustrations furnished in the paper may seem almost incredible. Thus one of the patients, a typical case of hysteria, with pronounced allochiria, his right side being for him non-existent, was given a screwdriver and asked to insert a screw with his right hand. At once he took the screwdriver with his left hand and used it quite dexterously and naturally. When, on the contrary, he was asked to use it with the left hand—the patient being righthanded—he again took the tool with the left hand, but this time he was practically unable to use it, merely fumbling with it in the clumsiest way. If the screwdriver was put into the right hand it was not used at all, because the patient seemed to have forgotten how to use it; if it was put into the left hand it was employed properly as long as the patient thought he was engaged with the right hand. The change that took place when he was told to use the left was astonishing. These and many similar illustrations will well repay a perusal of the original communication, although the explanations of the author may not always commend themselves to the critical reader.

A SMALL-POX HOSPITAL AS A SANATORIUM FOR CONSUMPTIVES.

THE South Staffordshire Joint Small-pox Hospital Board has been in communication with the Local Government Board concerning the use of its hospital as a sanatorium. Since the erection of the hospital several years ago no patients had been admitted. The Local Government Board has replied that it did not consider that the joint small-pox board could itself undertake the treatment of phthisis in its hospital. At the same time, the principle to utilise the hospital for cases of phthisis when the accommodation was not required for cases of small-pox was not one to which the Local Government Board would raise objections on medical grounds, assuming that there was efficient disinfection between its use for the two diseases, and that the consumptive patients could at once be removed in the event of cases of small-pox being notified. If it were proposed to let the hospital to a hospital committee of the Staffordshire county council for the use of consumptive patients, and a Provisional Order were needed to enable the proposal to be carried into effect, the Board would be willing to consider an application for such an Order. At a subsequent interview with the Assistant Secretary of the Local Government Board, it was suggested that the county council should pass a resolution authorising the addition of phthisis to the list of notifiable infectious diseases, and that it should subsequently appoint a committee under the Isolation Hospitals Act, to include members of the Wolverhampton council. The county council should then agree with the Small-pox Hospital Board for the temporary use of the hospital, it being understood that if an epidemic of small-pox occurred the phthisis cases should be instantly removed. As Wolverhampton was a county borough and outside the Isolation Hospitals Act, it was suggested that the Wolverhampton corporation should agree with the county council for so many beds or patients from Wolverhampton. By those measures the Assistant Secretary thought the matter might be carried out, but he was very much averse from anything like a permanent arrangement, as the Board anticipated, having regard to the long period which had elapsed since the last small-pox epidemic, it was safe to predict that sooner or later another would occur.

A NEW INTERNATIONAL JOURNAL FOR DISEASES OF NUTRITION, METABOLISM, AND DIGESTION.

THE present tendency towards specialisation in medicine, surgery, and the related sciences is reflected in the ever-increasing number of journals and periodical publications devoted to special subjects. The activity of the workers in different countries is now so great that some such means of collating the results of research and rendering them more accessible becomes almost a necessity. We have received a copy of the first number of a new publication entitled *Internationale Beiträge zur Pathologie und Therapie der Ernährungsstörungen, Stoffwechsell, und Verdauungskrankheiten*. It is edited by Professor Adolf Bickel of Berlin, with the collaboration of distinguished workers in almost all countries, including Dr. A. E. Garrod, Dr. W. Hale White, and Professor Bayliss in this country, and it is published in Berlin by August Hirschwald. Papers intended for publication may be sent in the German, English, French, or Italian languages, but to each must be appended a *résumé* in German. It is to appear in parts, four of which will constitute a volume, and the parts will be published at intervals when the editor has sufficient material for the purpose. Professor Bickel in his introductory notice expresses the hope that in addition to purely scientific investigations the results of practical methods of treatment will be published in the *Beiträge*, thus affording help to the practitioner. He also believes that the international character of the publication will serve to give a wide currency to the papers published. The first number contains some valuable papers and augurs well for the success of the new publication. Dr. G. v. Benczúr of Budapest contributes a paper on the peristalsis of the small intestine; Dr. G. di Gristina of Naples discusses the respiratory changes in fowls rendered gouty by feeding on substances rich in nucleins, such as liver; Dr. Th. Borodenko of Charkow describes some experiments concerning the nervous regulation of the secretion of gastric juice, and especially concerning the regulating centre in the pyloric region. He finds that every part of the stomach cut off from this centre shows a continuous secretion. Dr. M. Rheinboldt of Kissingen describes the course of secretion in an isolated part of the stomach divested of its nerve-supply. An interesting review of the medical treatment of simple ulcer of the stomach in France is contributed by MM. Mathieu and François Moutier of Paris. They point out that at the present time the treatment is essentially eclectic, and that the work of Lenhartz has received favourable recognition in France, so that more early feeding is now adopted after hæmorrhage and after severe attacks of pain than was formerly the case. Bismuth

and belladonna are extensively used, but the administration of alkalies is much less employed. They admit that the determination of the indications for surgical treatment is the main question of the day. Professor Obrastzow of Kiew reviews the treatment of gastric ulcer in Russia. The editor, Professor Bickel, contributes a review of the pathology of the secretion and movements of the digestive canal, which contains within short compass some interesting material. We welcome this new publication and feel assured that it will be well supported and will prove of great value to the medical profession in many countries.

THE JOHN HERBERT WELLS FUND.

THERE is hardly need to retell the story of the heroic life and death of John Herbert Wells, for those of our readers who did not read the obituary notice in our own columns of Oct. 23rd last have probably seen particulars of his career in one or other of the daily papers, which published the appeal on behalf of his widow and children. In case any have not seen them we may repeat that whilst treating a case of human glanders successfully with a vaccine Wells received an accidental laboratory infection, which resulted in his death in October last after 18 months of helpless suffering. There has been a generous response to the Fund from the general public and the medical profession, but those who have undertaken to collect and administer it are very anxious that such a sum shall be provided as will ensure an income that will enable Mrs. Wells to live in moderate comfort and to educate her two children in a manner worthy of their father. Every additional £100 that is raised will further this end, and we ask those of our readers who are blessed with a comfortable living, if they have not yet subscribed to this Fund, to give according to their means. The medical profession is conspicuous for its charity, and it cannot surely be better exercised than in honouring the memory of one of its martyrs by rendering substantial assistance to those who were dearest to him. The committee in charge of the Fund are the Right Hon. A. J. Balfour, the Earl of Dalhousie, Lord Justice Fletcher Moulton, Sir Almroth Wright, Mr. H. A. Harben, Mr. Edmund A. Smith, Dr. W. H. Willcox, and Mr. Julian Lousada. Lord Dalhousie and Mr. Lousada are the joint honorary secretaries and treasurers of the fund, and will be pleased to receive subscriptions sent either through this journal, in which they will be acknowledged, or directly to 16, Old Broad-street, London, E.C.

THE RELATION OF THE BRITISH RED CROSS SOCIETY TO HOME DEFENCE.

WE have already referred in these columns to the new scheme of organisation of medical aid to our Forces in the event of invasion.[1] The medical organisation for the fighting line has been completed, also that for the base of operations, in the shape of 23 large hospitals, which will be opened as required at important centres throughout the country. For the intermediate arrangements the War Office authorities rely on the assistance of the non-military part of the population, which they ask to be afforded through the agency of Voluntary Aid Detachments in connexion with the County Associations and the British Red Cross Society. Sir Alfred Keogh recently gave an address at St. James's Palace to the council and officials of this society, in explanation of the principles of the scheme, and emphasising certain important details. Why should not every town and even every important village possess one of these detachments? We are told by war experts that there is no single spot in these islands from which it can be said such aid will not be required should the necessity arise for the defence of our country. The members of such a detachment should possess a working knowledge of first aid and field nursing, and plans should be prepared beforehand. "Let us suppose that the schoolhouse, the church, or the hall will hold 40 wounded. 40 beds must be provided. Are there 40 inhabitants who will give a bed and bedding for each of these? Are there ten women who will nurse them? Are there three women who will cook for them? Is there a minister of religion who will give them spiritual comfort and consolation? Is there a village carpenter who will prepare splints for the mangled limbs, and are there children who will roll the bandages to envelop them?" No doubt all will be forthcoming, but what is needed is preparation, organisation, training. There must be no confusion, no overlapping, no misunderstanding; there must be knowledge, organisation, precision, discipline, self-sacrifice. Everyone must know his own place, or *her* own place, and women are little less needed than men, for nursing, for cooking, and, as we see here for the first time in military organisation, as qualified physicians and surgeons. The county branches of the Red Cross Society undertake the formation of these Voluntary Aid Detachments; each county is to have its own director, who will act as administrative officer. Wherever the military operations are taking place, the commander should know the capacity for assistance of the part of the country concerned. Suppose the railway lines are blocked, or that the urgency of the military operations renders their use impossible except for combatant purposes, the local resources would have to be relied on both for accommodation for sick and wounded and for transport. All this should be thought out and arranged beforehand, so that the commander might know that by such and such a route there would be clearing hospitals, temporary rest stations, and all that is needed for the sick and wounded. Sir Alfred Keogh admitted that the work to be done to secure this result looked formidable; but he maintained that it is not really so. No one individual has to know all the duties, and the demands upon the time of members of the Voluntary Aid Detachments need not be great, once a beginning has been made. We again commend this scheme to our professional brethren throughout the country; success is assured if we as a body respond to the call of the military authorities. No class or profession is more sincerely desirous of peace than our own; but *si vis pacem, para bellum.*

[1] THE LANCET, Oct. 9th, 1909, p. 1080.

THE MEDICAL SCHOOLS OF FRANCE: A STUDENTS' GUIDE.

THOSE who have just completed, or nearly completed, their medical curriculum in this country often derive great benefit from a short period of additional study in one of the continental schools. All change of environment has a real educational value, and this applies with force to young practitioners whose life's work will bring them into contact with different classes of the population in every possible condition of health and sickness. Breadth of view is gained by living under the altered conditions abroad, and those who can afford this useful interlude should certainly take it. *Le Progrès Médical* has now issued a Numéro des Étudiants, a cloth-bound volume of more than 1000 pages called "Index du Progrès Médical," and we are flattered to note that the idea of the publication was originally suggested by the Students' Number of THE LANCET. The work covers a wide field, and those who intend to study at any medical school in France will find in the earlier portion an exhaustive account of all the schools in the country, with useful notes on the stages of the curriculum and the examining bodies, and a long list of the subjects on which candidates have been examined for

the last seven or eight years. The book includes also an official list of the qualified practitioners in France; lists of benevolent, assurance, and medical protection societies; and a short account of the recognised medical schools in other countries. The labour of compilation must have been immense, and the result reflects great credit on our contemporary.

CENTRAL DISLOCATION OF THE FEMUR.

IN the *New York Medical Journal* of Nov. 13th Dr. A. E. Halstead has called attention to central dislocation of the femur, an injury which has received little notice. By central dislocation is meant fracture of the acetabulum with dislocation of the head of the femur into the pelvic cavity. Only about 50 cases have been recorded. Most of them are reported as fractures of the acetabulum, but as the presence of the head of the femur in the pelvic cavity is the most important element, Dr. Halstead, following the Germans, discusses the condition under the title of central dislocation of the femur. In his clinical lectures published in 1821, Sir Astley Cooper described one of the earliest cases. A patient was admitted to St. Thomas's Hospital with the appearance of dislocation backward of the head of the femur. Death occurred on the fourth day, and a fracture of the os innominatum was found with dislocation of the head of the femur into the pelvis. Dr. Halstead reports the following case. A man, aged 43 years, was admitted into hospital on March 18th, 1909. About six hours previously he fell down a flight of stairs whilst under the influence of alcohol, alighting on the right hip and right arm. He attempted to rise but was prevented by intense pain in the right hip. There was a Colles's fracture of the right arm. The right leg was moved with difficulty in consequence of pain and rigidity of the muscles of the hip. The trochanteric region was flattened, the foot was slightly rotated inwards, and the leg was adducted. On manipulation movements of the head of the femur were found limited in all directions; adduction and abduction were practically impossible; slight rotation was possible, the right trochanter swinging through a smaller arc than the left. Pressure on the trochanter caused great pain. Measurement from the anterior superior spine of the ilium to the inner malleolus showed three-quarters of an inch of shortening. The trochanter projected half an inch above Nélaton's line. From the most prominent part of the trochanter to the symphysis pubis measured 6¼ inches on the right side and 6¾ inches on the left. Rectal examination showed that the head of the right femur projected through the acetabulum into the pelvis. Radiography confirmed the diagnosis of central dislocation of the femur into the pelvis, with fracture of the acetabulum. On April 5th under ether the dislocation was reduced by manipulations similar to those for reducing a posterior dislocation of the head of the femur—flexion of the leg upon the thigh, flexion of the thigh upon the abdomen, internal rotation, and finally circumduction outward with extension. While the movements were in progress rectal examination showed that the head could easily be removed from the pelvis, but if released it returned to the pelvis. By maintaining extension and abduction the head was held outside the pelvis, and in this position a plaster cast was applied from the lower costal border to the toes on both sides. The legs were held in abduction by means of a brace placed between the knees, which was included in the plaster cast. After two weeks the cast was removed from the uninjured leg and on May 10th the remainder was removed. Massage and passive and active movements were begun. On May 29th examination showed some flattening of the trochanteric region. Movements of the hip-joint were possible in all directions but not to a normal degree. The thigh could be flexed to 60°; outward rotation was almost normal; internal rotation was very limited; adduction was limited; abduction was about half the normal. On June 1st the patient could walk without crutches. In central dislocation of the femur there are frequently, in addition to fracture of the acetabulum, other injuries—fracture of the rami of the pubis or ischium, separation of the symphysis, and hæmatoma of the trochanteric region or the various intermuscular spaces. Laceration of the iliac vessels, with rapidly forming hæmatoma and death from hæmorrhage, has been noted. The nerves of the pelvis may be injured, causing paralysis. The intestine may be perforated by a fragment of bone or compressed between the head of the femur and the pelvis, or the bladder may be perforated. Most of the cases recorded before the introduction of the X rays were not recognised until after death; posterior dislocation of the femur or fracture of its neck was diagnosed. The violence which causes the dislocation is usually great, but an insignificant fall or blow may cause fracture of the acetabulum, and an attempt at standing may force the head of the femur into the pelvis. The signs are well illustrated by the case now recorded. The most important sign is the presence of the head of the femur in the pelvis, which can be found by rectal examination. The diagnosis should be confirmed by skiagraphy.

THE TENURE OF MEDICAL OFFICERS OF HEALTH.

WE are pleased to see that there is at least one municipality, to wit, that of Richmond, sufficiently liberal in its views to adopt voluntarily a rule for dealing with its medical officer similar to that recently secured in favour of county medical officers of health by Mr. Burns's firm conduct of the Housing and Town Planning Bill after the Lords had sent it back to the Commons for amendment. At a meeting of the Richmond town council held on Dec. 14th the following resolution was moved by Councillor Taylor:—

> That subject to the approval of the Local Government Board, the appointment of Dr. John Hedley Crocker as medical officer of health for the borough be renewed at an annual salary of £450, until he resign or be removed by the council with the assent of the Local Government Board.

The gist of this re-arrangement is to substitute a permanent for an annual contract, and the form in which the resolution was expressed had, said its mover, the approval of the Local Government Board. One councillor only raised his voice in criticism of the motion, but he was silenced with shouts of "Agreed" from the rest of the Council, and a precedent was thus set by the borough which we hope will be widely followed throughout the country.

THE REPORT OF THE LOCAL GOVERNMENT BOARD.

THE second part of the report of the Local Government Board (1908–09) was issued this week. It records, amongst other things, a year's work of public health administration which on this occasion demands more than usual attention since part of this work refers to the operations of the Public Health Acts Amendment Act, 1907. Some highly interesting aspects of the questions relating to food and water supply are also set forth.

THE King has signified his pleasure that the Faculty of Physicians and Surgeons of Glasgow shall hereafter be known as the Royal Faculty.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies has reported 23 cases of plague with 13 deaths during the week ending Dec. 23rd, 1909.

OBSERVATIONS ON THE CIRCULATORY SYSTEM.

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I.

IN no branch of physiology is it more necessary for the physician to be well informed than in the physiology of the circulation: the workings of the circulatory system, as manifested by such phenomena as the apex beat, the sounds of the heart, the pulse, and alterations in the cutaneous circulation, thrust themselves upon his notice during almost every moment of his work, and afford valuable evidence on which to base diagnosis, prognosis, and treatment.

Surprising as the statement may appear, however, our knowledge of the circulation is still very imperfect, and many erroneous views prevail on the subject. I go so far as to say that in this land of Harvey we are still in ignorance of some of the elemental truths regarding the circulatory system, and it is well that medical men should wake up to the fact. I will relate two incidents in proof of my contention.

Not long since I asked a noted physiologist, a great authority on the physiology of the circulation, if he thought the last word had been said on the mode of action of the semilunar valves. He looked at me with surprise, and it was evident that he did not know what I was driving at. I explained to him that I found it difficult to believe that the delicate aortic valves could by their own unaided strength sustain the pressure of the aortic blood, and I suggested that unless they were substantially supported on their ventricular aspect during ventricular diastole, the strain upon them would be so great that rupture must very soon occur. All he could say in reply was that their nutrition must be very active! Clearly the difficulty I pointed out had never occurred to him. Once this difficulty is realised the inadequacy of the current view of the action of the aortic valves becomes obvious. We see at once that they must be substantially supported from below during ventricular diastole. It has long seemed to me that the only way in which the necessary support can be secured is by that portion of the ventricle which is immediately subjacent to the valves remaining contracted during the early part of ventricular diastole; and it has, I understand, recently been shown in America by a laborious series of experiments that such a sphincter action does in point of fact obtain. So much for my first incident. Here we have an eminent authority on the physiology of the circulatory system, a specialist of specialists, coming to grief, as it were, at the very first fence, on the threshold of the problems connected with the circulatory apparatus.

The other incident which showed me how inadequate is present-day knowledge of the circulatory system, even among the initiated, was a conversation with a physician well known for his valuable clinical researches into cardio-vascular physiology. I had looked forward to an instructive chat with him on a subject with which he had so closely identified himself. What was my surprise when he informed me, with that splendid honesty which belongs to the truly scientific mind, that he was all but entirely ignorant of the physics of the circulation, and that he had nowhere been able to find any satisfactory account of the matter.

A reference to students' text-books emphasises the same conclusion. Not only do they reveal the blanks in our knowledge, but they often show ignorance of important truths which are known. I have been at pains to read through the accounts of the circulation in all the more recent of these books—some dozen in all—and I venture to say that it is impossible to get a proper grasp of the subject of the circulation from any one of them or from all of them together. I will illustrate this statement by giving some of the errors both of commission and omission which I have noticed.

I have just remarked on the inadequacy of the current description of the action of the semilunar valves—how the sphincter action of the ventricle has been overlooked in connexion with the closure of these valves. In addition to this error of omission, all the students' text-books I have consulted describe the closure of the semilunar valves as sudden and abrupt. These valves are assumed to be violently slammed down at the beginning of ventricular diastole by the pressure of the blood above, thereby producing the second sound of the heart; but a moment's serious thought will surely suffice to convince most that such delicate structures cannot possibly withstand a hundred thousand (or so) daily bangings for some score of years. No tissue in the body could be subjected to such treatment without undergoing marked organic change. On the current view that the semilunar valves are unsupported after their closure on their ventricular aspect, such violent closure would assuredly very soon lead to rupture; given such support it would induce enormous fibrous hyperplasia. Is it not evident that the closure of the semilunar valves is effected gradually and cautiously?

In several of the text-books, again, the old mistake is repeated of assuming that the capillaries offer considerable resistance to the blood-flow, whereas, as I showed some years ago, the resistance they offer is so small as to be practically negligible. One writer would have us believe that the slowness of the capillary circulation is due, not to the great width of the capillary bed, but to the enormous friction of the blood (*sic*) within it, thus making the double mistake of assuming—first, that the capillary resistance is considerable, and, secondly, that a high capillary resistance would slacken the flow in the capillaries without affecting the rate of flow in the entire arterial tree behind them.

Another mistake met with in many of the books is the assumption that the influence of thoracic aspiration in aiding the flow of blood into the right heart operates during inspiration only, the fact being overlooked that aspiration is maintained during expiration as well, the mean aspiratory action of the thorax being, indeed, ordinarily but very slightly greater during inspiration than expiration.[1]

Among errors of omission I may refer to the fact that no mention is made of the important function of the actively contracting vascular media in preventing the blood-vessels from undergoing a progressive yielding. When we reflect that a pressure of a few millimetres of mercury suffices to cause a steady stretching of the thick walls of an ovarian cyst, which may thus attain enormous dimensions, it is obvious that the blood-vessels which are subjected to considerable and continuous internal pressure must be endowed with special means of resisting the tendency to undergo progressive yielding when subjected to a constantly acting stretching force. Their ability to do this they owe chiefly to their muscular elements which in the actively contracted state offer a resistance *sui generis* to progressive yielding. Were the blood-vessels devoid of muscular elements, they would in a very short time undergo enormous aneurysmal dilatation. This function of the vascular media accounts for many facts of interest to the physician—e.g., why a chronically hypertonic artery never becomes dilated or tortuous (so long as the muscular fibres remain intact), no matter how high the habitual blood pressure; and why, on the other hand, a chronically relaxed—hypotonic—artery, such as the temporal, tends to become highly dilated and tortuous, even though the blood pressure be habitually low.

In none of the physiological text-books, again, is the important question considered why systemic resistance is so much greater than pulmonary resistance, and why, therefore, systemic arterial pressure is so much higher than pulmonary. Yet this is one of the fundamental problems of the circulation. The fact that the systemic arterial pressure of a rat is greater than the pulmonary blood pressure of a cart-horse surely needs some explanation.

Another object not touched upon in the text-books—nor, indeed, so far as I know, in any physiological writings—is the comparative tension of the various tissue elements in the vessel wall—muscular, yellow elastic, connective tissue. The tension of these elements is by no means necessarily one and the same at any given time: thus when an arteriole is in a state of hypertonus the pressure of the blood is entirely borne off from the adventitia, while the intima is also equally devoid of tension, though it will be compressed between the blood on the one hand and the media on the other. Under ordinary conditions the tension in the

[1] The aspiratory action of the thorax is chiefly due to the tension, or tautness, of the pulmonary tissue, and the mean tension of the lungs is manifestly the same during inspiration and expiration. The slight excess of inspiratory over expiratory aspiration is due to the fact that intrapulmonary air pressure is somewhat less during inspiration than during expiration. In ordinary breathing, however, it is practically the same.

muscular and elastic elements of the media is greater than the tension either of the intima or the adventitia.

Seeing that the description of the circulatory system in the accepted text-books is thus inadequate, it is not surprising that physicians have not always the clearest ideas in regard to it, and that this deficiency in exact physiological knowledge should be manifested in their writings on diseases of the heart and circulation. Many instances might be given in proof of this. It will suffice to mention the oft-repeated fallacy that high arterial pressure causes polyuria. The essential cause of high arterial pressure is a generalised arteriolar contraction, but this, while it augments arterial pressure, causes a fall in the capillary pressure, and such a fall occurring in the capillaries of the kidneys would lead to diminution in the secretion of urine. What probably, nay, almost certainly, happens in the polyuria which so frequently accompanies high blood-pressure is this: while there is a widespread constriction of the arterioles generally, causing a heightened pressure in the renal arteries, the intra-renal arterioles are maintained in a condition of dilatation, thus causing a diminution of resistance to the flow of blood through the kidneys. The atrophied kidneys are consequently abundantly flushed with blood, and polyuria results.

Some general remarks on the pulmonary and systemic circuits.—In the accompanying diagram (Fig. 1) I have attempted to represent the vascular system of man (the portal system is omitted). With the data at disposal it is not possible to make it more than approximately accurate. It will be observed that I have made the systemic circuit about three times the length of the pulmonary circuit (each circuit consists, of course, of innumerable individual circuits, and it is to the mean of these that I here refer); also that I have represented the capillaries as extremely short, their average length in the case of the systemic circuit being, indeed, not more than, say, 1-2000th part of the entire circuit; further, that I make the "bed" of the systemic capillaries about three times as wide as that of the pulmonary capillaries.[2] The only means at our disposal of estimating the relative widths of these two beds is by a comparison of the average rates of blood-flow in the systemic and the pulmonary capillaries, and observation shows that the flow is much more rapid in the latter than the former; assuming it to be three times as rapid, the pulmonary bed would be one-third the width of the systemic bed.

Note, again, that while in the case of the pulmonary circuit the capacities of the arterial and the venous portions are represented as equal, in the case of the systemic segment the venous portion is shown as about three times as capacious as the arterial. The large capacity of the systemic venous segment is for the purpose of providing a reservoir for blood which is for the time being not required by the tissues. There is, on the other hand, no object in having the venous (distal) portion of the pulmonary segment more capacious than the arterial (proximal), for once the blood has become oxygenated in the pulmonary capillaries the sooner it is conveyed to the left heart the better, and there would be no advantage in the pulmonary venous segment being larger than is necessary for the due reduction of resistance.

The entire capacity of the systemic circuit is said to be some 12 times that of the pulmonary circuit, a relation which is only very imperfectly represented in the diagram.

Finally, it will be observed that the pulmonary and the systemic arterial beds are represented as undergoing no increase until the region of the arterioles is reached. "At all points," writes Thoma, "where they have been closely investigated the transverse sectional areas of the lumen of the arterial trunks are equal to *the sum of the transverse sectional areas of their branches.*"[3] Exactly where the arterial bed begins to widen Thoma does not say. It is certain, however, that it must undergo considerable widening in the neighbourhood of the arterioles: so long as the sectional area ("bed") of the vascular tree remains the same, so long will the rate of flow remain the same in it; hence, if the sectional area of the arterioles were the same as that of the aorta, the rate of flow in the former would be the same as that in the latter. Now we know that on an average the blood flows many hundred times more rapidly in the aorta than in the capillaries, and if the circulation is as rapid in the arterioles as in the aorta, it would be many hundred times more rapid in them also than in the capillaries. This is certainly not the case. We are therefore driven to conclude that, whatever be true of the pre-arteriolar vessels, a considerable widening of the vascular bed takes place in the region of the arterioles, and it seems likely that it undergoes some widening before these small vessels are reached.

It will also be seen from the diagram (Fig. 1) that I have

FIG. 1.

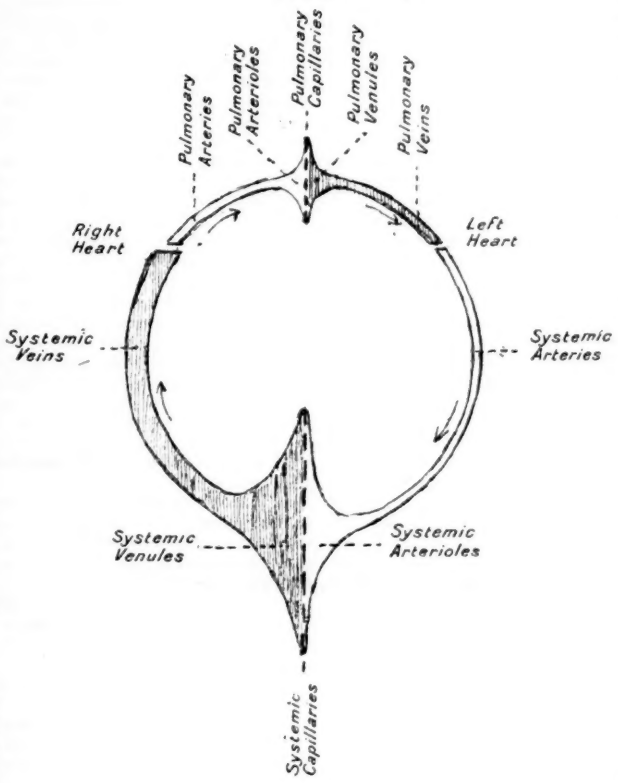
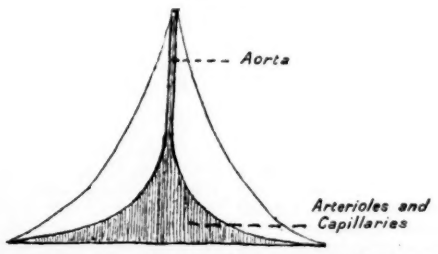


FIG. 2.



The shaded area represents the amount of blood contained in the arterial systemic segment on Thoma's view. The unshaded area represents the extra quantity required to fill the arteries on the older view. It will thus be seen that Thoma's assumption implies an economy both of blood and of vascular tissue.

[2] It is manifestly impossible in such a diagram as the above to represent the relation of the pulmonary or systemic capillary bed to that of the arteries or veins.

[3] Text-book of General Pathology, Richard Thoma, p. 275; translated by Dr. Alexande B

assumed the systemic venous segment to be constituted on the same lines as the arterial segment in regard to the widening and narrowing of its bed. Whether I am correct in this I cannot say.

It should be noted that the older view which regards the vascular bed as increasing all the way from the heart to the capillaries, and as diminishing all the way from the capillaries to the heart, implies a much greater total vascular capacity than the arrangement here assumed. We have seen that it is of advantage to have a specially capacious venous segment in the case of the systemic segment in order to provide a reservoir for blood not for the time being needed by the tissues. A correspondingly capacious arterial portion, on the other hand, would not only demand a considerable increment in the total blood mass (see Fig. 2), but would unnecessarily prolong the passage of the arterial blood from the left heart to the tissues.

The Structure of the Blood-vessels.

We have still much to learn concerning the structure of the blood-vessels. Indeed, the detailed study of the minute anatomy of the veins (whatever may be the extent of our knowledge of the arteries) can hardly be said to have yet begun. An important point to remember is that individual arteries and veins display considerable variations in their structure, varying, as they do, both according to their size and their locality. Thus the structure of the large arteries differs widely from that of the arterioles, while the arteries of one organ, such as the spleen, differ from those of any other organ, such as the liver. The capillaries of different regions also present considerable differences in their minute structure. This is shown by their varying permeability; the hepatic capillaries, for example, are very much more permeable than the capillaries of the lower extremities.

This inadequacy in our knowledge of the normal structures of the blood-vessels in different regions of the body often makes it difficult, or, indeed, impossible, to decide whether a given vessel is diseased or not. Thus, as A. V. Meigs observes, "No text-book contains an accurate description or illustration of perfectly normal renal blood-vessels, any more than of blood-vessels of the other organs, and therefore anyone who studies diseases of the kidney is constantly confronted with the difficulty of deciding whether a particular blood-vessel is normal or diseased." This difficulty is enhanced in the case of the arterial intima, the seat *par excellence* of arterial disease, for not only does this coat normally present considerable differences in the arteries of different tissues, but it normally undergoes thickening with advancing years "as surely as the face becomes wrinkled." It is often difficult, again, to decide whether the adventitia is morbidly thickened or not, owing to the difficulty of determining the boundary between it and the adjacent connective tissue.

The naked-eye difference between the arteries and the veins.—The arteries are thicker than the veins, and do not, like the latter, collapse when empty of blood. This tendency of the veins to collapse when undistended by a positive internal pressure is of interest in connexion with the negative pressure in the intrathoracic veins. It is manifest that collapsible vessels under a negative internal and a positive external pressure must necessarily collapse unless held open by their external attachments. We seem, therefore, compelled to assume that the veins which enter the thorax are for a certain distance before their entrance kept patent by external attachments. The chief of these veins are the jugulars, the subclavians, and the terminal portion of the inferior cava. Opening into the latter are the hepatic veins which receive the intrahepatic veins. These latter are certainly kept open by their attachment to the dense tissue of the liver, an arrangement which allows the negative pressure in the inferior cava to extend to them.[4] When we reflect that the blood pressure in the portal vein is no more than some 10 mm. Hg, the advantage of a negative pressure in the tributaries of the hepatic veins is obvious.

The arteries must not be thought of as having the same thickness during life as after death; when distended by the blood pressure they are not more than half as thick as when contracted after death. The increased thickness due to post-mortem contraction involves the media chiefly.

[4] I have no authority for saying that special means are provided for preventing the jugular and subclavian veins and the upper part of the inferior cava and the hepatic veins from collapsing, but this seems a reasonable *a priori* assumption.

The microscopic structure of the blood-vessels.—A few points in connexion with the minute anatomy of the blood-vessels require mention here. The larger arteries and veins are made up of three coats—the adventitia, the media, and the intima.

Arteries.—The adventitia consists of dense fibrous tissue containing elastic fibres, most numerous towards its inner aspect. These fibres are connected with the elastic laminæ of the media, and their presence in the adventitia tends to cause this coat to remain closely applied to the media when the latter contracts; yet it is probably only when the artery is distended beyond the average that the adventitia exercises pressure upon the media. There can be no doubt that the function of the adventitia is to protect the vessel rather than to support the pressure within. In extreme contraction of the media this coat tends to recede from the adventitia, which is then, in the case of the smaller vessels at least, entirely protected from the distensile effects of the blood pressure.

Between the adventitia and the sheath of the vessel is a lymphatic space.

The media, in the case of the larger arteries, consists of alternating layers of elastic membranes and unstriated muscle fibres, interspersed with which is connective tissue consisting of fibres and connective tissue cells. These latter when irritated proliferate and form new tissue. The elastic laminæ are united by obliquely disposed elastic fibrils. In the larger arteries the elastic elements predominate over the muscular; in the smaller vessels the opposite is the case. Indeed, in the arterioles the media is made up almost entirely of transversely disposed muscle fibres. It is, however, a great mistake to suppose that the large arteries are not well supplied with muscle tissue; it has been estimated that the aorta possesses as many as 65 layers of elastic membrane, and, inasmuch as these alternate with muscle fibres, it is evident that the total quantity of muscle tissue in the aortic wall is considerable. The significance of this fact will be pointed out in due course. The muscle fibres are for the most part arranged transversely, though oblique and longitudinal fibres are met with in certain vessels. I believe, however, that even when the fibres appear to be arranged in the transverse direction only they exercise by their contraction a longitudinal as well as a transverse tug. The reason for this conclusion will appear later. The arteries which supply bone and those of the retina are by some authorities said to be devoid of muscle tissue. This is certainly not true of the retinal arteries, nor of the nutrient arteries running in osseous canals, and I should be surprised if it be true of any arteries.

The intima consists largely of connective tissue cells which on stimulation readily proliferate and form connective tissue. This coat also contains a considerable proportion of elastic tissue.

Veins.—The adventitia of the veins is generally thicker than that of the arteries, and contains less elastic tissue. The media, on the contrary, is thinner than in the arteries, and consists chiefly of connective tissue, muscular and elastic tissue being relatively small in amount; but individual vessels differ considerably in this respect. Thus the walls of the jugular veins, in which the blood pressure is habitually low, have very few muscular and elastic fibres, while those of the veins of the lower extremities, in which vessels the blood pressure in the upright position is high, are almost as rich in these elements as are many arteries. (Similar though less striking differences are found in the *arteries* of the upper and lower parts of the body, the amount of muscular and elastic tissue in a vessel, be it artery or vein, bearing, in fact, a definite relation to the amount of blood pressure it is called upon to withstand, as Thoma and his pupils—Epstein, Sack, Mehnert, and Brigmann—have ably demonstrated.) Certain veins, such as those of bone, muscle, the central nervous system and its membranes, and the retina, are said to be (like certain of the arteries) devoid of muscular tissue. The walls of the cerebral sinuses are formed of dense dura.

As in the case of the arteries, the muscle fibres are generally arranged transversely, but certain veins, such as those of the lower extremities, the portal, and the renal veins, are also provided with longitudinal fibres.

The veins opening into the auricles (the vena cava and the pulmonary veins) contain striated muscle fibres, continuous with similar fibres in the auricles themselves. The heart-beat starts by a contraction of these fibres. Those in the pulmonary veins extend in man to the hilum of the lung, but

n some mammals—e.g., the rat and the mouse—they extend as far as the smaller vessels and constitute the chief part of the vessel wall.

The chief function of the adventitia, whether of artery or vein, is to afford the vessel protection from external injury, and this coat is accordingly thickest in those vessels which are most exposed to injury. Thus, as Ballance and Edmunds have pointed out, while it is very thin in the well-protected intrathoracic aorta, it is thicker in the abdominal aorta; and in arteries, such as those in the neighbourhood of joints, and, above all, in the facial and superior mesenteric arteries (the former of which occupies a very vulnerable position, while the latter is subjected to constant strain by the movements of the viscera) it attains remarkable thickness. That the adventitia takes little or no part in withstanding the blood pressure is conclusively shown by its remarkable thinness in the case of the intrathoracic aorta. Not only is the tension in the walls of this vessel much greater than in any other (both by reason of the high blood pressure to which they are subjected and, as will be explained in due course, the large size of the vessel lumen), but there is an absence of support from without—nay, more than this, the exterior of the vessel is even subjected to a negative pressure. The strain on the vessel wall produced by the blood pressure is, as we shall see, chiefly borne by the media.

(To be continued.)

Looking Back.

FROM

THE LANCET, *SATURDAY*, Dec. 31st, 1831.

EXPERIMENTS ON THE BLOOD IN CHOLERA.[1]

To the Editor of THE LANCET.

SIR,—Having been enabled to complete the experimental inquiries on which I have some time back been engaged in Newcastle-upon-Tyne, I beg you will have the kindness to give insertion to the annexed outlines of the results I have obtained:—

1. The blood drawn in the worst cases of the cholera, is unchanged in its anatomical or globular structure.

2. It has *lost a large proportion of its water*, 1000 parts of cholera serum having but the average of 860 *parts of water.*

3. *It has lost also a great proportion of its* NEUTRAL *saline ingredients.*

4. *Of the free alkali contained in healthy serum, not a particle is present in some cholera cases, and barely a trace in others.**

5. Urea exists in the cases where suppression of urine has been a marked symptom.

6. *All the salts deficient in the blood, especially the carbonate of soda, are present in large quantities in the peculiar white dejected matters.**

There are other results of minor consequence, to which I will not at present allude, neither shall I on this occasion offer any observation on the practical inference to which my experiments may lead. In a few days a detailed report shall be published, in which the mode of analysis, &c. will be minutely described. It will be found, I regret to say, in every essential particular, to contradict that recently given by Hermann. All my experiments, however, have been publicly performed, and can be authenticated by numerous witnesses, a precaution I thought it necessary to adopt, lest it might be supposed that I impugned, without sufficient foundation, the accuracy of the Moscow professor

May I add, that until the publication of my report, I shall deem the suspension of discussion on the results now introduced as a matter of personal courtesy and obligation.

I am, Sir,
Your obedient servant,

London, 29 December, 1831. W. B. O'SHAUGHNESSY, M.D.

* The blood and dejected substances were obtained in one analysis, from the same patient, and the blood was drawn half an hour after the evacuation occurred.

[1] Vide "Looking Back" in THE LANCET of Dec. 11th, 1909, p. 1770.

The Lancet Commission

ON

RINGWORM,

ITS PREVALENCE, INFLUENCE, AND TREATMENT.

With Special Reference to the Metropolis.

A VERY few words will suffice to introduce the work which follows. Recognising the grave prevalence of ringworm and the disastrous influence which this prevalence has upon the education of children, we invited two thoroughly competent dermatologists to make an inquiry for us into the whole question as it is at present affecting the school children of the metropolis.

The Grave Prevalence of Ringworm.

The prevalence of parasites on and in the human body is characteristic of comparatively low forms of civilisation. All who are acquainted with savage races know to what a great extent both internal and external parasites prevail amongst such people. An excellent example of the wide extent of parasitic diseases was afforded by the pigmies who were brought from Central Africa to England two or three years ago. Each one of them imported several kinds of entozoa and several vegetable parasites of the skin also existed amongst them. Much has been done to check the prevalence of parasites among human beings, but more remains to be done. The risks of the spread of infection are especially great among children, for they are either unaware of the danger of contagion or unwilling to undergo the restraint which precautions entail. The spread of education has resulted in increased facilities for the spread of contagious diseases amongst children. Thus it has come to pass that in all large cities the vegetable parasitic diseases of the scalp are widely prevalent. A large proportion of all children are affected by some form of ringworm, and especially are the children of the less educated classes affected, for in this point it must be recognised that the less educated are really representatives of lower grades of civilisation. Fortunately, soon after puberty the human body is little tolerant of the presence of these parasitic plants. For some obscure reason most forms of ringworm die out before their host has reached the age of 20.

Nevertheless, from the age of infancy to about puberty children are extremely susceptible to all forms of ringworm. There was a time not very long past when it was not recognised that there was any need to sequestrate children so affected, and they were allowed to attend unchecked the public schools of this country; but when it came to be seen that such carelessness led to a widespread extension of the disease it was found desirable to exclude entirely from the schools, both private and public, all children known to be suffering from ringworm. The intention was good, and the plan no doubt served to check to some extent the spread of the disease, but though these children were forbidden to associate with their fellows in the schools of the country no attempt was made, or hardly any attempt worthy of the name was made, to prevent infected children from associating after school hours with those who were healthy. And so it happened that the disease continued to extend widely amongst children, especially those attending the public elementary schools. Meanwhile another evil hardly less serious had arisen from those very precautions which we have mentioned. The children excluded from the schools were excluded also from the educational facilities which those schools imply, and it was not as if this exclusion endured merely for a few weeks or months, for in not a few cases years elapsed without certain infected children attending school even once. Thus the Public Education Act has been nullified in many individual instances. The parents have been theoretically compelled to send their child to school, but the school has refused to receive the child, with the result that the child has lost that education which the Act provided for it.

Here and there certain boards of guardians made arrangements for special ringworm schools when they had under

their care many children affected with this disease, but these arrangements, whether efficient or not, had no bearing on the children of parents who did not come within the operation of the Poor-laws. The process of exclusion has been going on steadily. The numbers excluded were great a few years ago, but they are greater still now, for the appointment of medical inspectors of schools and the employment of inspecting nurses have resulted in the removal from the classes of the elementary schools an even greater proportion of their scholars. And it is not only the children who are excluded who suffer: the schools suffer also. The medical officer of the Education Department of the London County Council has reported that 12 schools taken at random in various parts of London lost in 12 months 26,766 attendances from ringworm. If we may take this as a basis we find that the loss of attendances in the whole of London of the public elementary schools amounts to 1,179,934. If we may take the minimum number of sessions in one year required by the Board of Education to be 400, the total number of lost attendances is equal to the absence of 2950 children. The schools suffer pecuniarily, for every child who fails to attend means a diminution of the grant earned by the school. If the figures already given may be taken as fairly representative of losses of school attendances, we find that the total loss of grants amounts to £5654 in every year. This is a sum not to be despised even by the London County Council.

Dr. James Kerr, the medical officer of the Education Committee of the London County Council, has said: "The extent to which ringworm prevails amongst school children at the present time is a serious handicap to about 5000, many of whom have been compulsorily absent from the school for periods varying from a few weeks to as much as three years. The loss of education sustained by these children can never be regained. Calculations based upon an examination of the registers of a dozen schools taken at random prove that the loss of grants by reason of absence through ringworm alone amounts to £5654 per annum, so that any methods which can eradicate this disease, or even diminish its duration, must not only be welcomed by all educationists on behalf of the children but will prove to be an important economic factor. The argument at one time put forward against taking the matter in hand was that proper treatment was not available, and that the only treatment which was available was tedious and very uncertain, but now that the method of treating this disease by X rays has long since passed the experimental stage and has been proved to be certain and rapid, and in the hands of experts absolutely free from risks of any kind, any argument against the adoption of this method no longer holds good."

Dr. Sidney Barwise, county medical officer of health, Derby, says: "Ringworm prevails to such an extent among the school children in Derbyshire as to interfere seriously with their education and to handicap them in after-life. It has been calculated to the present time that upwards of 600 children are so affected." This information was asked for to indicate the extent to which ringworm prevails at a distance from London.

Thus we see that both from the point of view of the children themselves who are excluded from the schools, and also from the point of view of the schools which exclude the children, the present condition of affairs is extremely unsatisfactory. Education is lost, and if we believe, as probably we may, that even in their present condition the elementary schools have a civilising influence on the children who attend them, the children excluded from these schools lose not only education, limited as the word often now is to mere book-learning, but they lose also all those other elevating influences which flow from education in the true meaning of the word. The schools, too, lose in money, and the rate levied for education is necessarily higher because the grants which might have been earned are not received.

We have said enough to show that the evil of the present arrangement is great, and the question arises, Can anything be done to stem this advancing tide of ringworm, or even more to put an end to it, to remove completely, to eradicate thoroughly the disease from London or even from the whole country?

The Numerous Treatments: The X-ray Treatment.

We know nothing of the life of the parasites of ringworm apart from their existence on the human body. It is true that we can grow them in artificial media, but they have never been found growing naturally, unless in a living human or animal body. Some of them, indeed, we derive from the lower animals, and it is not impossible that the others live a soporific life on some decaying vegetable or animal matter, and therefore even if we could cure all cases now suffering from ringworm it would be impossible to guarantee that the disease might not reappear, even if not introduced from without. Nevertheless, such cases would undoubtedly be very few, and no one who considers the subject can doubt the expediency of doing the utmost to cure every case of ringworm in the British Isles, for if that were done the disease would become extremely rare and of little practical importance. Occasionally, at long intervals, it might appear to have arisen *de novo*, but prompt action on the part of the authorities would serve to put an end to such small local incursions. The question then has to be asked and answered—Is it possible so to treat ringworm as to eradicate the disease from this country?

Many have been the methods of treatment devised for ringworm. Examination of any large text-book of dermatology will reveal more than a hundred medicaments which have been recommended and employed for the treatment of ringworm, and new methods of cure make their appearance at not infrequent intervals. So that those unlearned in dermatology sometimes hesitate as to the drug to employ because of the number of drugs which have been recommended. Those who have had much experience of ringworm recognise that the disease can be cured by means of drugs, but it needs great perseverance on the part of the prescriber, and even greater perseverance on the part of the parent of the child, and even then, with all this exertion, the cure is not unlikely to occupy many months. It is difficult to express in figures the average duration of a case of ringworm when drug treatment is employed for its cure, but we think we shall not be misrepresenting the general opinion of dermatologists when we say that in most cases from 6 to 12 months are needed for the cure of a case of ringworm by means of the application of drugs. The disease, however, is most prevalent amongst those classes where we are least likely to find parents who have the perseverance needed, or if they have the perseverance they are little likely to have the time to devote to the thorough treatment of ringworm which the obstinacy of the disease requires. This may account in great part for the fact that the disease is more common among the children of the working classes, and we have further to consider that the possibility of isolation of infected children is very small in cases where the whole of the apartments sheltering the family may consist of two or even only one room.

Fortunately, the last few years have shown us that the Roentgen rays possess, among the many properties which to them belong, the property of causing a copious defluvium of the hairs of the part exposed, and, if the dose can be suitably adjusted, without producing any harmful effect on the other tissues of the scalp. It has not been proved that the Roentgen rays have any power of destroying the spores of ringworm; in fact, all the evidence that we possess shows that these low forms of plant life grow quite as freely under the influence of the Roentgen rays as if they were beyond them. But it is certain that in most cases the throwing out of the hair from its follicle is followed by the formation of a new hair with no evidence of disease in it. The falling hair has carried with it all the ringworm spores and has left the follicle empty and free from disease, so that the hair which replaces it does not contain any ringworm spores. This is a remarkable fact and is the basis of the greatest advance in the treatment of ringworm which has up to the present been known.

Many forms of ringworm of the scalp are recognised, but all of them seem equally applicable to the X ray treatment, and the good result that may be expected in the future is exemplified by those which have already been obtained in the treatment of favus. This disease was never common in London, but for a number of years past the frequency of it had been increasing, especially in the East-End, and even here it was almost always found in the families of those who have been born abroad. The natural habitat of the disease appears to be Poland and the Balkan Provinces. In these countries it is far more frequently met with than in any other part of the world, and the disease, as occurring in London, has been chiefly found affecting those who have

emigrated from those countries. The increase in the number of favus cases became at last so great that it was resolved to devote special care to attempts to eradicate the disease. It was decided in 1905 to open a special school in Finch-street, Whitechapel, for children suffering from favus where the children could be isolated and educated, even if not treated, without the risk of spreading the disease in the ordinary schools. In June, 1906, the school was started with 61 pupils. In the beginning there was no attempt at treatment, but later the children's heads were regularly cleansed and in many cases a good deal of improvement followed, especially as the cases were followed up by a nurse, who made careful inquiries at the patients' homes. In May, 1908, an apparatus for treatment by the X rays was installed. For more than 12 months this method was regularly used, and by that time all the children but three had been cured, so that it was not considered necessary to continue longer a separate school. A few cases of favus will in the future no doubt be found from time to time, especially in immigrants, but these will be few and scattered and they can be treated as out-patients. It is worthy of note that all the cases treated at the Finch-street School were of alien descent with one exception.

These very satisfactory results of the X ray treatment, that favus has been for all practical purposes completely eradicated from the public elementary schools, and that the cases have remained cured for more than three months without any indication of any recurrence of the disease, justify us in assuming that by a similar process the closely allied disease of tinea of the scalp can be eradicated from amongst the children of London.

At first when X ray treatment was adopted for ringworm the ideas as to the dosage of the rays were of the vaguest. The object to be aimed at was to use sufficient of the rays but not to use too much, so that the risk of doing any harm to the tissues of the scalp might be reduced to a minimum.

There are obviously two methods by which this treatment may be carried out: either the patient may be given comparatively small doses of the rays at intervals until the hairs are thrown out, then the treatment would stop. If this method be adopted it is possible by frequent observation to observe the degree of reaction produced, and the use of the rays can be arrested before any violent reaction results. The other treatment is to give on one occasion only a single dose of the X rays, just sufficient to cause the throwing off of the hairs. At first sight the former of these methods, which was the first employed in point of time, might seem to be the safer and the more efficient, but experience has shown it is not so; for the difficulties are twofold—on the one hand, if the various applications of the rays are given at short intervals the risks of over-dosage will be by no means slight, for the reaction of one application will not have had time to show itself before another application is given; on the other hand, if the intervals between the applications are too great, so that the certainty of the absence of excessive reaction is assured, the loosening of the hairs will not be complete, and those which have been slightly disturbed will be able to regain to some extent their fixation before the next application of rays is made, whence it results that in many cases even after repeated application the epilation is only partial and insufficient.

The latter of the two methods mentioned was devised by Sabouraud of Paris, who by careful experiment was able to estimate fairly accurately the amount of X rays required to cause complete loss of hair. This dose he gauges, not by duration of application, not even by the ampèrage of the primary or even of the secondary current, but by the effect of the rays on a disc of sensitive material which needs to undergo a definite change of colour before the rays have been sufficiently applied. These pastilles of Sabouraud are acknowledged by most dermatologists to be of the greatest value in the treatment of ringworm.

An Inquiry into the Position in London.

As it has been now established that X ray treatment in some form is the most valuable method at our command for dealing with tinea of the scalp, it may reasonably be asked what is being done in London to combat the thousands of cases of ringworm which are known to the educational department of the London County Council. Although, for the most part, all who have had special opportunities for experience of the treatment of this disease are agreed that the X rays are the most suitable method of treatment and the most speedy, yet there is far from being any unanimity in detail amongst them as to the methods by which the X rays should be applied. Therefore it has been considered not only interesting but also of great practical importance to endeavour to ascertain what methods were actually in use, for the special modes of application adopted in the various hospitals do not find their way into print, whence it follows that many niceties of detail which are of importance for perfect success are not adopted because they are not known. In pursuance of this desire to ascertain what was being done in London in the treatment of ringworm we have instituted inquiries as to the methods pursued at the various cliniques, and we will now set them before our readers. The list of hospitals visited is not, and is not intended to be, in any way exhaustive, but our investigations have been directed to many of the most important, and we have taken care not to omit from our examination any clinique where any special method of application of the X rays is followed. At the same time, we have made inquiries as to the number of cases which could be treated at each of these hospitals, so that some idea might be arrived at as to the possibility of overtaking the immense number of cases already present in the schools.

London Hospital (Dr. J. H. Sequeira).—The department possesses two installations fitted with milliampère meters and spintermeters. The mode of application is by the circular glass shield which necessitates about seven exposure areas. The installation is also fitted with tachimeters, instruments which may be set to register any definite number of interruptions of the primary current; when this number is reached the current is automatically switched off; these instruments are of scientific interest but practically they are of little value because the action of one tube differs so greatly from that of another, and varies so in the tube itself from one minute to another, that a dose measured in this way can never be safely assumed to be exact. Dr. Sequeira said that after a long experience he was satisfied that with a proper apparatus, used with sufficient care in the hands of an expert, the X ray treatment of tinea is certain, rapid, and safe. Only five cases of more or less permanent alopecia have resulted from the treatment at the London Hospital, and they were all among the earlier applications. In two cases the affected areas were small and occurred just where there had been an overlapping of the applications. One was due to the excessive convexity of the skull, permitting a small part to be too near the anode, and two of them were due to overdose, but one of these had been previously treated with severely irritating drugs. Some pastilles have been placed on the market which have been responsible for misadventures, and he believed that the only trustworthy pastilles were manufactured by Radiguet and by Drault, both of Paris. At the London Hospital they tried to work under such conditions as would administer a pastille dose in 12 minutes or even a little more. By far the greater number of cases, probably 95 per cent., were examples of microsporon. The suggestion of injury to the brain he did not hesitate to say was entirely imaginary. But it would be unwise to expose to a prolonged administration of X rays the skull of a child before the fontanelle was closed. It is not possible for the most part to give any record of results concerning mental effect, but 267 of his cases had been inmates of orphan schools or similar institutions and he had been able to ascertain from the authorities concerned, and in this respect their reports were unanimous that after a lapse of two years not a single case of mental abnormality had been observed in any one of these children. Unless the accommodation at the London Hospital are increased and more assistants provided it will not be possible to undertake the treatment of a larger number of children than at present. Dr. Sequeira considered, however, that if the London County Council or its education committee were to attack this question in the thorough manner in which it had been undertaken by the Metropolitan Asylums Board the prevalence of ringworm in or around London would in the course of four or five years be infinitesimal.

Guy's Hospital.—In this department 454 cases of ringworm were treated by X rays in one year. During the term of office of the present medical officer, Dr. C. E. Iredell, no accidents or untoward circumstances have occurred. For the radiation

of each complete scalp ten applications were needed, as circular shields were employed. A milliampèremeter was employed, but little attention was paid to the spark gap. Dr. Iredell said that sometimes the hair did not fall because when the pastille reaction had not been reached in half an hour the application was always stopped in case all the factors were not working accurately. It would not be possible to treat any more cases than at present unless another installation was provided.

Evelina Hospital for Children.—The X ray department was in charge of Mr. R. Higham Cooper. The technique adopted in the X ray treatment of ringworm was practically that devised by Sabouraud; there was, however, no milliampèremeter, but some attention was paid to the equivalent spark gap; an absolute reliance was placed on the reaction of the pastille. Extremes of vacuum of the tubes were carefully avoided, the operator endeavouring to work under such conditions as would produce a pastille dose in about 20 minutes. At this hospital the number of children treated was vastly on the increase. Accurate figures for any number of years could not be given, but in the three months May, June, and July of 1909 69 cases were treated, while in the month of September over 50 cases had been dealt with. It was, however, worthy of mention that by reason of a letter which appeared in the *Times* in April, 1909, suggesting that permanent injury might be caused to the brain by the application of X rays, many parents were declining to submit their children to the treatment.

University College Hospital.—The department possesses two installations, but they are without spintermeters, milliampèremeters, or anything else to measure dosage, and Sabouraud's pastilles are not employed. The technique employed here was peculiar to the hospital. The scalp was divided into five or six areas, and each area was exposed to the rays for ten minutes on three alternate days, each area thus having to be treated three times, and each head thus received a minimum of 15 exposures. Very little attention was paid to the hardness or softness of the tube, so that in the case of a tube being used which would administer a full dose in 15 minutes, it would adminster a double dose spread over the three applications. When a tube's equivalent spark gap was six inches, it was considered too hard, and when it was so soft that reverse currents passed freely it was considered too soft. This method did not appear to be very satisfactory. It was laborious to the operator and tedious to the patient and attended with definite risks of permanent alopecia; for an overdose from a hard tube, not sufficient to cause dermatitis, may be sufficient to cause permanent baldness. It may be mentioned that the dermatologist at this hospital has no control over the X ray operator or his department, so that when a patient has been certified for X ray treatment he passes from the hands of the dermatologist. In 1908 87 children were X rayed for ringworm, but in 1909 147 had been so treated up to Sept. 21st.

St. John's Hospital.—Mr. Chisholm Williams has charge of the X ray department. It possesses one installation fitted with a milliampèremeter and a spintermeter, but little attention is paid to the spintermeter. During the past year 270 children were treated by X rays with no misadventure of any kind. Mr. Williams considered that children under the age of 10 years and having more than one area infected ought to have the whole head irradiated at once. As to the number of children that could be treated, if he had another installation he could, he said, treat 300 more children in a year, but with an additional assistant the hospital could deal with 1000 children a year. He considered that so long as the education committee of the London County Council did not take the matter in hand it would be impossible to make any appreciable diminution in the extent and prevalence of the disease.

Ringworm schools of the Metropolitan Asylums Board.—These are under the charge of Dr. T. Colcott Fox. The Board used to have two schools devoted to ringworm—one at Sutton containing over 400 beds, and another at Witham with 180 beds, but after the introduction of the X ray treatment it was soon found that one establishment was sufficient to deal with all the cases, and the school at Witham was therefore closed; at the present time there are even at Sutton over a hundred vacancies. The average period of detention of the first 100 children admitted to the Board's ringworm schools was under ordinary medicinal treatment 19 months, but the average stay of the first 100 children treated by X rays was four and a half months from the time the treatment was actually begun, yet they were not dismissed until the re-growth of hair appeared. The admissions during the year 1908 were 807, an increase of 61 compared with the year 1907. The majority of the cases—in fact, about 82 per cent.—are of the small-spored type, whereas in general hospital practice as many as 95 per cent. are small-spored. Dr. Fox considered that the treatment by X rays was by far the best method, especially when the infected area was at all large. A prolonged experience of this method confirmed his views that it was in many respects ideal, especially in regard to the points of certainty, rapidity, and painlessness; but this effective agent demands for its absolute success the most careful attention to the details of the technique, such as exists in the Board's ringworm school, and the practice of the methods must be in the hands of an expert.

Dr. H. G. Critchley, who is in charge of the X ray department at the Asylums Board school at Sutton, gave the following account of the arrangements. "We have three installations, each fitted with a milliampèremeter, spintermeter, and a clock. All three installations are employed at the same time by one medical officer, whose attention is unremittingly fixed upon the working conditions of the tubes as indicated by the milliampèremeters and spintermeters, while the Sabouraud pastille is relied upon as an absolute check. A nurse is always in attendance and assists in getting the children in position and in keeping records of the work done, but no case is ever commenced or finished except by the medical officer himself. The 'five-exposure naked' method is in practice here without any shields except for the ears, face, and neck. Except when the occiput is being treated the children lie comfortably on a couch instead of sitting upon a chair, and in this way it is possible to do the whole head of young children at a single sitting. The number of children treated by X rays is nearly 4000, while about 800 have been dealt with during the past year. In the earliest period of X rays treatment three or four cases of dermatitis occurred resulting in more or less permanent alopecia, but since that time upwards of 15,000 applications have been made without a single untoward result. I endeavour to work under such conditions as will provide a pastille dose in 14 to 18 minutes; a very soft tube causes superficial erythema, which is of no importance but is, nevertheless, better avoided, while a very hard tube may cause an impaired regrowth though falling short of causing a severe dermatitis. When a tube is new and soft I always substitute a harder one at the end of 15 minutes; on the other hand, I have to treat many children under four years of age, and in such cases the reasons against the use of a very hard tube are obvious. At one time some untrustworthy pastilles were on the market, but Radiguet's or Drault's are both reliable. It is a mistake to examine a pastille too frequently, for it exposes it to the effect of light and retards its perfect reaction, and this may induce an over exposure, but this risk can be absolutely obviated by the use of the milliampèremeter and with attention to the spark gap. During the past 12 months I have made over 2000 exposures for ringworm alone, but never without a milliampèremeter and a spintermeter, and with the assistance of these indicators I do not hesitate to apply the X rays to heads exhibiting much impetigo, and this is extremely common among institution children. The inflammatory condition is thereby considerably aggravated, but as soon as the hair is shed the impetigo vanishes. The amount of X rays which reach the brain through a pastille dose by a median tube is only about one-fifth of a dose, so the suggestion of injury to the brain is simply ridiculous."

St. Bartholomew's Hospital.—The X ray treatment of ringworm is under the care of the physician for diseases of the skin, Dr. H. G. Adamson. There is one installation fitted with milliampèremeter and spintermeter. The number of cases of ringworm treated by X rays is very small, only about 100 in the year, because there is no X ray operator, and Dr. Adamson cannot afford the time to do more. Dosage is measured by the Sabouraud pastille, but much attention is paid to the indication afforded by the milliampèremeter and the spintermeter, and endeavour is made to work under such conditions as will produce the pastille dose in about 14 minutes; 12 minutes is considered too short.

When treatment of the whole scalp is undertaken the "five-exposure naked" method is adopted. No case of dermatitis or permanent alopecia has occurred. Dr. Adamson considers that the idea of injury being caused to the brain is unreasonable, the amount of rays which reach the brain being less than a quarter of the dose.

Croydon Education Committee and Ringworm.

Dr. H. Meredith Richards has made the following report, which may be usefully read in connexion with the foregoing summary of inquiries:—"In May, 1906, I made a recommendation to the education committee that the children suffering from ringworm should be treated by X rays, and I pointed out that the cost would be more than recouped by the extra amount of attendance grant which would be earned. This recommendation was adopted, and I was authorised to arrange tentatively for this treatment for six months. Instead of having to incur the expense of installing the costly apparatus required we were able to utilise the services of an X ray expert resident in the town, and arrangements were made with him to carry out the necessary work. Among the first 50 children so treated were some who had been under various forms of treatment for two years, but without any appreciable result. Within five weeks from the time of the X ray application these were all free from infection and readmitted to school, and it soon became evident that we were beginning to get the disease under control. Nearly 350 children have now been treated by X rays. During the first few months we proceeded with great caution as it was most important that there should be no cause for anxiety among the parents whose children were being treated, but very soon the parents' requests for immediate treatment were more than we could cope with. However, apparently in consequence of a letter which appeared in the *Times* suggesting that these methods might cause permanent injury to the brain, many parents have hesitated to submit their children to the treatment, while some absolutely refused to do so. But we have still under observation most of the children who were treated two or three years ago, and not in a single instance is there any suspicion of an injury having been caused."

The Results of the X Ray Treatment.

It will thus be seen that there is great unanimity amongst those who have had much experience with the X ray treatment of ringworm, that this method is rapid and certain and free from risks in the hands of those who thoroughly understand it, but that there is a great deal of diversity of opinion as to many of the details. But before dealing with the question of the methods to be adopted in attempting to eradicate the disease from London schools it would be wise to devote some attention to the question as to the possible risks of this method.

When the treatment was young various undesirable effects were produced. In some cases the hair only returned partly, in some it did not return at all, while in a very few X ray ulcers were produced. But these harmful effects are never seen now. We have learnt the conditions which govern their appearance, and anyone at all cognisant with the employment of X rays should be able to avoid them with certainty. The possibility, however, of a more serious danger has been suggested. In April last a letter was published in the *Times*, written by Dr. Dawson Turner of Edinburgh, in which he suggested that there was a possibility that the treatment of ringworm by X rays might cause injury to the brain. This letter was widely copied or rather quoted by other papers, especially by those which were opposed to the more or less compulsory treatment of ringworm by X rays. The letter raised widespread fear in the minds of many parents, with the result that very large numbers of children who would otherwise have been cured of their ringworm and be now receiving the benefit of education are still excluded from school, and are likely to be excluded for very many months to come. Proof of any harm is absolutely wanting. No one who has employed the method for long has seen any instances bearing out Dr. Dawson Turner's contention. It may be pointed out that he has suggested that the results may not manifest themselves for many years after the application of the rays, but more than five years have elapsed since the earliest application, and we have not been able to learn that in any of these has harm resulted. It is incumbent now on those who imagine that harm does follow the application of X rays to produce the grounds for the view.

We feel that a careful consideration of all the evidence available justifies us in saying that X rays, when properly applied to the scalp of a child suffering from ringworm, do no permanent harm either to the scalp, to its hair, or to the tissues beneath. The points which seem to us important in the treatment are the following. The scalp should be deprived of its hair in as few applications as possible. If any circular shield or stops be employed it must necessarily follow that either there must be areas of overlapping, or areas untreated by the rays. When only small areas are to be treated the hexagonal lead-glass stops are preferable to the circular, because hexagons can be fitted into one another. The "five area naked" method appears to us to be the best, for, as was first shown by Adamson, the overlapped areas only receive their due quota of rays, though it is necessary that ears, nose, and neck should receive protection. The strength of the secondary current from the coil should be controlled by observations of a milliampèremeter and of a spintermeter, but, above all, Sabouraud's pastilles prepared from trustworthy material should be employed.

Further, while the assistance of an intelligent nurse is of the greatest value to the X ray operator the full responsibility of the exposure and the results should rest on the operator himself.

In nearly all cases the whole head can be epilated in five or at the most six exposures. The nape of the neck seldom needs treatment and may usually be neglected. The ears, the nose, and the neck generally require to be shielded.

Methods of Dealing with Cases of Ringworm in London.

We may, therefore, take it as proved from the evidence which we have brought forward, and which accords with the opinion of practically all dermatologists, that at the present time the X ray treatment is the most certain and the most rapid method of treatment of ringworm of the scalp, and that with care and in the hands of an expert no danger is incurred. This being the case, it has to be determined what is the best method of applying the X ray treatment to the enormous number of children suffering from ringworm who now attend, or rather ought to attend, the public elementary schools of London. Only two methods can be suggested. Firstly, the work may be undertaken by the existing charitable institutions of the metropolis, or secondly, special centres might be established by the London County Council to deal with these patients. If the first method be adopted increased accommodation is necessary even were the existing institutions which possess X ray installations to work to their full capacity. At present there have to be dealt with not merely the annual increase in the cases of ringworm but the many cases which remain over from former years, and which have failed to recover under the older methods of treatment. It is probable that at the present time about 1000 cases yearly are added to the previously existing number of cases of ringworm, so that for the next few years arrangements made must be able to deal with 1000 new cases yearly in addition to the 5000 cases which at present remain uncured.

In the evidence we have brought forward it will be noticed that several of the existing hospitals express their ability and willingness to treat cases sent to them by the County Council, provided that it be possible to obtain additional installations and additional assistants. It would probably be possible to deal in this way with the annual increase, but that it would be equally possible to clear off all the residuum of cases from former years is not so clear. For this work, done on behalf of the London County Council, the charitable institutions performing it should receive remuneration, and the additional assistants required should be adequately paid. We understand that the London County Council is willing to adopt some such procedure, and it appears to us that this would be by far the cheaper method, for the Council would not need to spend any money on bricks and mortar.

The alternative scheme requires the establishment of a number of centres to treat these cases. The question of school cliniques is quite beside the present matter. Ringworm demands consideration for itself alone, and if considered from the economic point of view only the adoption of the X ray treatment will be a gain to the rates, while every child so cured will tend largely to limit the field of infection.

The establishment of four ringworm centres in the County

of London, each provided with two coils and worked by experts, would in the course of a year make a very appreciable impression upon the prevalence of the disease, and would probably by the end of the third year reduce it within inconsiderable limits. For calculations based upon 500 consecutive cases show that, allowing for school holidays and for careful treatment of the induction coils, each centre could turn out 700 cured cases in one year.

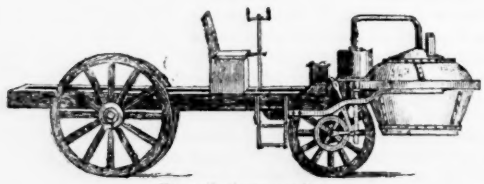
THE MEDICAL PROFESSION AND THE EARLY HISTORY OF THE MOTOR-CAR.

"The chariots shall rage in the streets, they shall justle one against another in the broad ways: they shall seem like torches, they shall run like the lightnings."—Nahum ii. 4.

IT is natural in considering the history of the motor-car to commence with the history of the coach, and the coach seems to have been at first chiefly employed for conveying sick persons and women. Men thought it weak and effeminate to use coaches unless they were precluded from riding on horseback by the gout or excessive corpulency or some other physical disability. Therefore it may be said that the litter was the father of the coach. And, further, as so many millions of people now spend so much of their lives in travelling in coaches of all kinds, the subject of their proper construction and healthy condition cannot be said to be without interest to the medical man.

It seems to be generally accepted that the first carriage propelled by steam was the steam lorry constructed by Cugnot, a French military engineer (born in 1725), in the year 1763, but this attempt proved a failure, although six years later he made an improved form of the vehicle

FIG. 1.



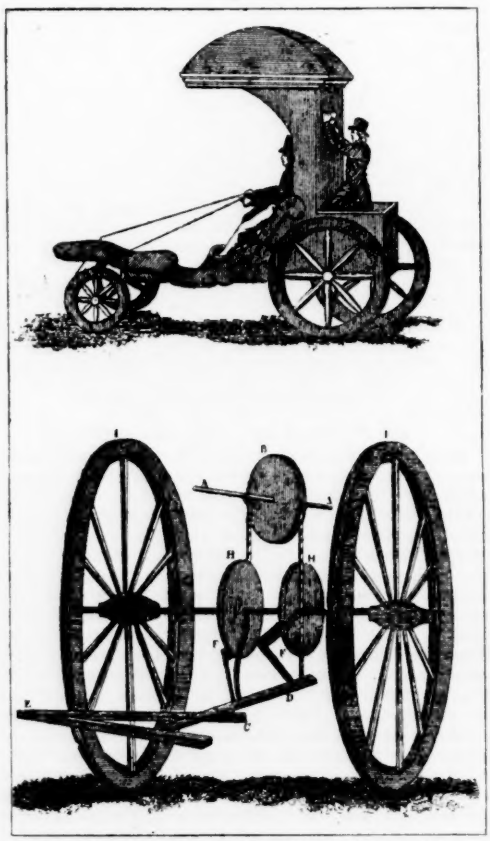
Cugnot's steam carriage.

which attained a speed of two and a quarter miles per hour. What his Christian name was seems to have given trouble to various writers, for he has variously been called Theophilus, Lorrain, Joseph, and Nicholas Joseph. The last seems to be correct, but in those days every man was "Citoyen" and Christian names were of little account. We reproduce a picture of its general appearance, and for description quote an interesting book published in 1896 at Tunbridge Wells by Mr. George Smith, a coachmaker, entitled "A Concise History of English Carriages." He says: "It was of a very wonderful design—a very long and heavy timber structure was supported at the rear by two great wheels about 6 feet high, and in front by a single central wheel. An extension of the frame in front carried a gigantic boiler and furnace combined; from the top of this a steam pipe led to a cylinder, and, by heavy and cumbersome connections a piston above the front wheel, which it worked by levers and cranks. The original and model are to be found in the Conservatoire National des Arts et Métiers, Rue St. Martin, Paris, which the writer visited during the Salon du Cycle, December, 1895." There is also a model, made by Messrs. Regnard Frères in 1892, deposited in the Science Museum at South Kensington, London. It is exhibit No. 107 in the Catalogue of the Mechanical Engineering Collection in the Science Division of the Victoria and Albert Museum. The model stands in the shadow of the original historical locomotive, "The Rocket," built by George Stephenson. We quote here a description of the model contained in the official catalogue:—

Nicholas Joseph Cugnot, a French military engineer, in 1769 made a steam carriage somewhat like this model, which, travelling on a common road, and carrying four persons, attained a speed of 2·25 miles per hour, but, the boiler being insufficient, the supply of steam failed after running for 12 or 15 minutes. These results, however, induced the French Government to order the construction of an engine for the transportation of artillery, which should be capable of carrying a load of about 4·5 tons and maintaining a speed of 2·25 miles per hour on level ground. The machine, of which the model shown is a copy, was made in 1770 by Brézin to Cugnot's designs, at a cost of £800, but was never tried, and is now preserved in the Conservatoire des Arts et Métiers at Paris. It consists of a heavy timber frame supported on three wheels and carrying in front an overhanging copper boiler. The front wheel has a broad, roughened tire, and is driven by two single-acting, inverted vertical cylinders 13 in. diam. by 13 in. stroke. The two pistons are connected by a rocking beam, and their motion is transmitted to the driving axle by pawls acting on two modified and reversible ratchet wheels. The distribution of steam to the two cylinders is performed by a four-way cock actuated by a tappet motion. A seat is provided for the driver, who, by means of gearing, was to be able to steer the machine, the boiler and engines turning together as a fore-carriage through 15 deg. either way.

A description will also be found in an excellent book entitled "The Complete Motorist," by A. B. Filson Young (Methuen and Co., London, 1904), together with another view of Cugnot's machine, and other views and particulars will be

FIG. 2.



Dr. Richard's horseless carriage and method of propulsion.

found in Mr. T. Rhys Jenkins's book on "The Motor-car" (T. Fisher Unwin, London, 1902). A plan of Cugnot's steam-car will also be found, with an excellent short history of the motor-car by the Marquis de Chasseloup-Laubat, in a book entitled "Motors and Motor-Driving," by Alfred C. Harmsworth, published in 1902. In this book also are interesting pictures of Hancock's steam coach "Era" (1833), the Squire and Macerone steam coach (1833), and Goldsworthy Gurney's steam coach (1833). In Mr. Smith's book is a picture of "The Patent Impulsoria" (reprinted from the *Illustrated London News*, June 22nd, 1850), a weird-looking contrivance consisting of a set of road wheels rotated by means of horses perched over the wheels and walking up a moveable inclined plane (an "endless" slope) after the fashion of a treadmill (this was no doubt the "Patent Impulsoire" shown by A. Crestadora of Manchester at the Great Exhibition, London, in 1851; a picture of "The Blackburn Motor-car,"

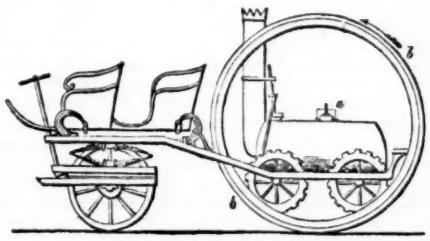
reproduced from the *Field* of 1878, designed by Mr. Blackburn of Tunbridge Wells, which resembled a smart dog-cart with a central front wheel instead of shafts; and a picture of Sir David Salomon's first Daimler motor-car. The Marquis de Chasseloup-Laubat also mentions that he wrote an interesting account of the motor-car for the *North American Review* in September, 1899.

Mr. Filson Young in his book gives several interesting illustrations of other early steam carriages—viz., Murdock's model (1784), Trevithick's (1802), Griffith's (1822), Gordon's (1824), James's (1824), Gurney's (1827), Dance's (1833), Hancock's (1833 and 1836), Church's (1833), Rickett's (1861), Carrett's (1861), Randolph's (1872). In the Science Museum at South Kensington pictures of some of these may also be seen. In a little book of "Curiosities" which was published in London in 1826, written in Spanish and evidently intended for readers in South America, there appeared a picture of a curious "carruaje sin caballos," or horseless carriage, which we here reproduce (see Fig. 2). The description stated that one of the first examples of this invention was that of a Mr. Richard, a medical man of Rochelle, who made the experiment in Paris "in the past century." The footman at the rear of the car kept on pressing down treadles which were connected with the wheels in such a way as to impart a forward movement to them, while the medical man in the fore part did the steering. The doctor's footman had no sinecure.

Mr. Filson Young gives a picture of one of Simon Stevin's sailing carriages dated 1600, and the little Spanish book to which we have just referred contains as a frontispiece a different picture of one of these sailing carriages, entitled "*Carruage con Velas*," and says it was constructed by Stephinus. Stephinus was a mathematician of Bruges who died in 1633, and particulars of him, we believe, may be found in biographical works. It may be interesting to mention here that Athanasius Kircher or "Father Kircher" (1602-1680), a pioneer of the magic lantern, magnetism, and acoustics, had an idea of putting a small wagon in motion by adding to it a pipe filled with quicksilver and heating it with a candle placed below it. This is mentioned in those interesting books, the "History of Inventions and Discoveries," by John Beckmann (English translation, London, 1814), and a reference is given to "Physiologia Kircheriana, Amstelodami," 1680, fol. p. 69. Kircher, by the way, wished to explain everything by magnetism, and used it in the treatment of diseases in peculiar ways. Although not a medical man he published a famous treatise on plague, in which he advanced an early theory of the spread of disease by germs or animate corpuscula.

Contemporaneously with Cugnot's failure with his steam car great improvements were made by the renowned James Watt of Greenock in his "Methods of Lessening the Consumption of Steam and consequently of Fuel in Engines." John Weale, the well-known writer on engineering subjects, stated in 1849 that the first idea of using the powers of steam for propelling carriages was generally ascribed to Dr. Robison in 1759, when it was suggested by him to Watt, who included a steam car in his patents of 1769 and 1784, but never carried them out. Mr. Young says, however, that Murdock, Wall's assistant, made a model. This refers to John Robison, who was born at Boghill in Stirlingshire in 1739 and died at Edinburgh in 1805. He was professor of chemistry at Glasgow (following Dr. Black, who recommended him) and of natural philosophy at Edinburgh, and contributed articles to the "Encyclopædia Britannica." Weale's statement is practically confirmed by the "Dictionary of National Biography." But greater credit is due to Joseph Black, M.D., F.R.S.E., of the University of Glasgow and later professor of chemistry at Edinburgh, for his discovery of "latent heat," and his conclusion (so aptly put in "The History of Chemistry," by Thomas Thomson, M.D., in 1830) that as water is ice united to a certain quantity of *latent heat*, so steam is water united to a still greater quantity. The requisite experiments were first attempted by Dr. Black in 1764 and he concluded that the latent heat of steam was not less than 810°. Mr. James Watt afterwards repeated these experiments with a better apparatus and very great care, and calculated from his results that the latent heat of steam was not under 950°. In 1797 Edmund Cartwright (of power-loom fame) invented a mode of applying the vapour of alcohol or other ardent spirit as a substitute for common steam, but was unsuccessful in obtaining a development of the idea. By the year 1800 the steam engine was in general use throughout the United Kingdom, but it seems somewhat strange that as far back as 1834 there was published a book entitled "A Concise History of Steam Carriages on Common Turnpike Roads." One would gather therefrom that these vehicles were then ancient history, and other authors assure us that motor cars are no new notion. Mr. Charles Frederick Partington, who wrote several works on mechanics, the steam engine, and coach-making in the "thirties," says in his "British Cyclopædia of the Arts and Sciences," dated 1835, that Bishop Wilkins describes the land-sailing vessels or wind chariots which had been long known in China. Mr. H. G. Wells seems to have taken note of this fact, as in his recent novel "War in the Air" he describes the Chinese as having secretly manufactured the greatest fleet of air ships in the world. Mr. Partington gives a concise account of the progress of steam carriages, some of which he himself possessed. He particularly notices the invention of the late Mr. David Gordon, patented in 1822, and copied the illustration of that gentleman's road car from a valuable work on locomotion by his son, Mr. Alexander Gordon. The title of this work was "A Treatise on Elemental Locomotion." This figure we reproduce (see Fig. 3). It will be observed that the front

FIG. 3.



Mr. David Gordon's road car.

seats give it an appearance slightly approaching that of the modern motor car. In describing it we cannot do better than follow Mr. Partington's words:—

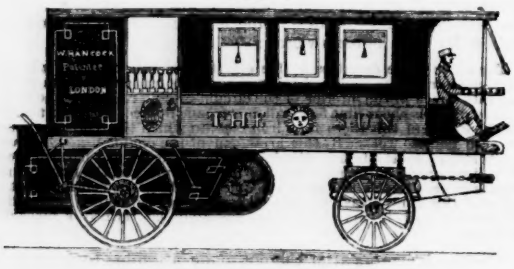
> The above figure describes a side elevation of this machine, *a* is the high-pressure steam engine, having the wheels made with teeth working into a rack in the interior of the circumscribing roller *b*. The large rolling drum is about nine feet in diameter, and five feet from end to end. In the inside of this there is an iron rack, in which the toothed wheels of *a* are made to work. By this arrangement the engine urged forward by its steam, must climb up the interior of the drum, as a turnspit dog or squirrel would do in pursuing its daily labours, and the large drum rolling onward impels the carriage. ..... Now it will be obvious that a roller of this kind, so far from deteriorating a road, must materially improve it, and it may not inappropriately be termed a movable railroad.

Various inventors after Cugnot made attempts to construct steam carriages, and it is recorded that Oliver Evans of Philadelphia patented a steam wagon in 1782, but the first invention which claims notice is that patented in 1802 by Richard Trevithick, a Cornishman, and his cousin, Andrew Vivian, and shortly afterwards brought into operation. Their carriage was mounted upon four wheels; the principal weight resting upon the hind wheels, which were of large diameter, while the fore wheels, which were used for guiding the carriage, were small and nearer together than the others. The boiler and the steam cylinder were placed at the back of the hind axle, and the cylinder was horizontal. The carriage, shortly after the date of this patent, was exhibited in London with sufficient success to prove the practicability of the invention. The inventors, however, soon gave up their experiments on common road locomotion and adapted their machinery to use upon a railway.

For about 20 years after no steam carriages for common roads were constructed, but when the improved state of the turnpike roads rendered steam locomotion more practicable upon them, steam-carriage projectors arose in rapid succession. Mr. Julius Griffith's steam carriage, patented in 1821, had the boiler and machinery suspended from the framework by chains and helical springs. Mr. David Gordon's machine, patented in 1822, we have referred to above. Another machine by this inventor had two long propellors or legs, intended to obviate the supposed

tendency of wheels to slip when ascending a slope. Of others who have invented and built steam carriages after 1824 the names of Sir Goldsworthy Gurney, Burstall and Hill, W. H. James, Walter Hancock of Stratford, Summers of Southampton and Ogle, Heaton, Dr. Church of Birmingham, Sir Charles Dance and Field, John Squire and Francis Macerone of Paddington, Scott Russell, Hills, and Sir James Caleb Anderson are the most prominent, although many others made attempts. Several of these inventors produced carriages capable of from 10 to 12 miles per hour for considerable distances, and a much more rapid rate of motion for a short time. Mr. Young says that Dr. Church's steam coach was a marvellous construction in outline and ornamentation, something between a gipsy van, a merry-go-round, and a ship. Pictures of it are shown at South Kensington. The greatest amount of success attained was in a steam carriage constructed by a Cornishman, Mr. Goldsworthy Gurney (1793–1875), who travelled in 1829 from London to Bath and back in one. He had been incited to the work by having observed one of Trevithick's cars running on the road in Cornwall. John Wade has written the following interesting note in his "British Chronology," under the date of July 28th, 1829, concerning this trip. He says: "Mr. Gurney's steam carriage, intended to go on the common roads, attacked by the mob at Melksham; it was on an experimental trip to Bath." The same historian also recorded a note about a trip in a steam carriage two years before, for under the date of Sept. 8th, 1827, he says: "A steam-carriage, to travel on common roads, made an excursion to Highgate; it proceeded at the rate of thirteen miles per hour, and its motions were easily directed by the conductor." Mr. Gurney was knighted in 1863. An excellent account of his life is given in the "Dictionary of National Biography." He was originally educated for the medical profession, and was placed with Dr. Avery at Wadebridge as a pupil and afterwards settled there in practice, devoting his spare time to the study of chemistry. In 1823 he began his experiments on the steam locomotive and gave up his medical practice. He invented the "oxy-hydrogen" blow-pipe and the Bude light.

FIG. 4.



Hancock's steam omnibus.

Mr. Gurney published in 1832 "Observations on Steam Carriages on Turnpike Roads, with the Report of the House of Commons." He also published papers on Chemistry. In consequence of the conflicting claims of different inventors a Committee of the House of Commons was nominated to investigate the subject, and it examined various witnesses whose steam carriages had been in daily use on the common roads—viz., Messrs. Summers and Ogle, Mr. James Stone, Mr. Gurney and others, and examined experts as to the effect of horse traffic in comparison. In the course of the evidence Mr. Ogle stated that his experimental carriage had travelled from London to Southampton in some places at a velocity of from 32 to 35 miles per hour. In October, 1831, this Committee presented a report favourable to the introduction of steam carriages on common roads. This report concluded with an interesting summary of what had been demonstrated to the Committee, which ran as follows:—1. That carriages can be propelled by steam on common roads at an average rate of ten miles per hour. 2. That at this rate they have conveyed upwards of 14 passengers. 3. That their weight, including engine, fuel, water, and attendants, may be under three tons. 4. That they can ascend and descend hills of considerable inclination with facility and safety. 5. That they are perfectly safe for passengers. 6. That they are not (or need not be, if properly constructed) nuisances to the public. 7. That they will become a speedier and cheaper mode of conveyance than carriages drawn by horses. 8. That, as they admit of greater breadth of tyre than other carriages, and as the roads are not acted on so injuriously as by the feet of horses in common draught, such carriages will cause less wear of roads than coaches drawn by horses. 9. That rates of toll have been imposed on steam carriages which would prohibit their being used on several lines of road, were such charges permitted to remain unaltered. Nothing practicable, however, came from the various inventions and the report except the running of some steam omnibuses and coaches in London and a few places in the provinces, as commercial failure attended all these attempts, and the attention of speculators was absorbed by enthusiasm for railways. We reproduce a picture of one of these steam coaches—viz., Hancock's steam omnibus (see Fig. 4).

In the year 1860 the fourteenth Earl of Caithness (James Sinclair, F.R.S.), who died in 1881, invented what he called "The Road Locomotive Steam Engine," for travelling on macadamised roads. His lordship acted as his own engine driver. This title, however, was used about that time for an engine which was more like the present traction engine in appearance, except that it had the addition of a little low trolley like a wheelbarrow fixed to the front part where a second attendant sat and guided the engine by a tiller like a person in a bath chair. The earl's conveyance was reported to have travelled over rough roads at a rate of eight miles an hour at a cost of less than 1*d.* per mile. Of course, the roughness of the roads was a great obstacle to be overcome in the construction of a perfect carriage, and this has been achieved by the introduction of indiarubber for the tyres of the running wheels, and it is on record that a Mr. R. W. Thomson of Edinburgh by adding indiarubber to the tyre of the wheels of locomotives in the year 1868 was considered to have solved the question of steam traction on common roads by "road steamers." Mr. Smith also refers to this in his book, but the invention of the Dunlop tyre revolutionised both cycle and motor traffic, and in the year 1891 the supremacy of the pneumatic tyre as regards cycling was completely established.

In 1875 M. Léon Bollée, a Frenchman, constructed a kind of steam omnibus, and models were shown at the Universal Exhibition of 1878 at Paris. Trials of steam tramway locomotives were made in London and other towns during 1876. Messrs. Merryweather of London, Messrs. Hughes of Loughborough and other firms succeeded in making such locomotives which emitted neither steam nor smoke, and one of the novelties of 1876 was a bicycle propelled by steam power. In the same year atmospheric gas engines were largely introduced the motive power of which was derived from a mixture of air and coal gas. About ten years later M. Serpollet and M. de Dion had steam vehicles running in Paris.

Following upon the use of steam as a motive power the use of electricity for the same purpose has to be considered, and in this respect we can hardly do better than refer to two lectures on the Electrification of Railways delivered before the Royal Institution of Great Britain in January, 1908, by Professor Gisbert Kapp, Dr. Eng., M. Inst. C.E., Vice-President of the Institution of Electrical Engineers. An interesting illustrated reprint of these lectures has been published. Professor Kapp refers to a somewhat uncertain record of a Mr. R. Davidson having constructed an electric locomotive which weighed 5 tons and was run at a speed of 4 miles per hour over the Edinburgh and Glasgow Railway in 1842. He remarks that in those days the trolley was unknown, and we must conclude that this locomotive, like the well-known boat of Professor Jacobi, was propelled by current derived from primary batteries. But what is certain is that a little electric railway having more the appearance of a toy was running in an exhibition held at Berlin in the year 1879. This was constructed by Werner von Siemens, and Professor Kapp reproduces an interesting photograph of it, which shows a little electric locomotive which seems no bigger than a travelling trunk on four wheels with the driver perched on it, and carriages like three pairs of garden-seats on wheels placed back to back and holding 18 people. The motor was a 3 h.p. and the speed four miles per hour. It is also on record that a similar contrivance by the same inventor carried passengers at the International Electrical Exhibition

at Paris in 1881. On the second page Professor Kapp shows a picture of the small electric tram-car which was running at Lichterfelde, near Berlin, in 1881, and held 26 people, including a driver and conductor. These cars were undoubtedly the forerunners of the electrical vehicles which run on the common roads to-day. In 1882 there was quite a wave of electrical invention and enterprise in the United Kingdom, and various short electrical tramways were laid down at Brighton, Portrush, Bessbrook, Newry, and other places, but as regards cars for the common roads the first long-distance run on a single charge was made by an electrical car in England in June, 1898.

The first electric carriages for ordinary roads were constructed in 1889 by Mr. Magnus Volk of Brighton, and the electric motor was worked by accumulators in the body of the car. But steam and electricity as motive powers have not advanced to a great extent and they have been outrivalled in many respects by the explosion motor, which Gottlieb Daimler (1834–1900) practically introduced for the purpose of propelling cars, and to him and to Carl Benz, Peugeot, de Dion, and other modern and well-known men is due the rapid progress of the motor traffic of to-day. Mr. Young in his book shows a picture of Daimler seated on a bicycle to which he first applied his explosion motor in 1886, but the first petrol car was introduced into England from France in 1895.

The following prophetic words by Dr. Erasmus Darwin in "The Botanic Garden," the first edition of which appeared in 1781, were quoted with hopefulness, but generally misquoted with wrong words and false quantities, at the time of the enthusiasm for steam-carriages in the "thirties":—

> "Soon shall thy arm, unconquered steam, afar
> Drag the slow barge, or drive the rapid car;
> Or on wide waving wings expanded bear
> The flying chariot through the field of air."

We do not know whether all at the present day will admit that the prophecy is realised, but many will recognise the aptness of the description from Nahum, placed at the head of this article.

So many medical men are now using a motor-car, and so many also have thought it well to perfect themselves in their mechanism, that we have thought the history of the introductory stages would prove interesting to our readers, while the part played by medical men in the evolutionary stages is very marked.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE following reports of committees for the year just passed were approved by the meeting of the General Council of the King Edward's Hospital Fund for London on Dec. 13th, 1909, the proceedings of which we recorded in our issue of Dec. 18th, 1909, p. 1833:—

REPORT OF THE DISTRIBUTION COMMITTEE.

1. The Council having this year placed the sum of £147,000 in the hands of the committee for distribution amongst the London Hospitals, as against £135,000 in 1908, the committee beg to report as follows:—

2. The number of hospitals applying for grants is 103, as against 105 last year.

3. In the new building of the Royal National Orthopædic Hospital, opened by His Majesty the King in July last, 130 out of the 200 beds for which the hospital is designed are already available for use. This represents a further stage in the amalgamation of the orthopædic hospitals. In addition to the grant for maintenance the committee have recommended a substantial sum towards the reduction of the debt on the new building.

4. The amalgamation of the Hampstead and North-West London Hospitals is now complete. The out-patient department, with a few beds for emergencies, will be maintained in the poor district of Kentish Town formerly served by the North-West London Hospital, while the in-patient department of the combined institutions is situated upon the higher ground of Hampstead. The committee, in addition to making a maintenance grant, have now set aside the sum of £3000 on account of the grants promised in connexion with the reconstruction of the out-patient department.

5. With regard to the Throat, Nose, and Ear Hospitals, no steps so far as the committee are aware have been taken during the year in the direction of amalgamation. The committee in their last report recommended that the sums set aside for this purpose in past years should not be held over indefinitely, and they consider that the time has now come to apply to these awards the rule that grants for special purposes should be reconsidered every two years if they remain unapplied. The committee, therefore, while setting aside the sum of £2,500 as the grant this year towards the amalgamation, recommend that the grants of £1000 made in 1906 and £2000 made in 1907 should now lapse.

6. The following grants made in 1907 for special purposes and retained in accordance with the rule also remain unapplied:—

East London Hospital for Children, £518 16*s.* 6*d.*, being the balance of a grant of £1000 to improvements.

Miller General Hospital for South-East London, £289, being the balance of a grant of £1250 to extension.

Royal Hospital for Diseases of the Chest, £1000 granted to open a fund for a country sanatorium.

The committee recommend that the unpaid balances of the grants to the East London Hospital for Children and the Miller General Hospital should be renewed. With reference to the Royal Hospital for Diseases of the Chest, they are informed that the governing body of the hospital have not been able to see their way to undertake a scheme for the provision of a country sanatorium. Under the circumstances they recommend that the grant should lapse, but they are glad to hear that the Convalescent Homes Committee of the Fund are making inquiries with a view to a scheme by which in certain existing sanatoria beds might be made available for patients from metropolitan hospitals.

7. In connexion with the resolution of the General Council requesting hospitals which are contemplating extension or reconstruction to submit their proposals to the Fund, the committee have again had before them several schemes of greater or less magnitude. To some of these the committee have raised no objection, in some they have suggested modifications, while two or three are still under consideration. In two cases, however, the schemes appeared to be open to such serious objections on general grounds that the committee felt compelled to recommend that the approval of the Fund should be withheld.

In one case, that of the National Hospital for Diseases of the Heart, it was proposed to rebuild and enlarge the hospital at a cost of £25,000. It is admitted that the present building is unsuitable for the purposes of a hospital, but considering the demands now made upon the charitable public for the maintenance and improvement of hospital accommodation in London, the committee could not recommend a scheme for the expenditure of a large sum of money in making special provision for cases which can be equally well treated elsewhere.

The other case raised the question of the proper method of supplying the need for a general hospital in Woolwich. In their last report the committee emphasised the policy adopted by the Fund of assisting in the provision of hospital accommodation in the outlying districts, and they consider that the special circumstances of Woolwich give that neighbourhood a strong claim upon the assistance of the Fund. The committee, however, saw grave objections to the particular scheme laid before them, which contemplated the gradual evolution of a hospital out of general wards connected with and subordinate to a small institution primarily designed for the training of midwives. The committee consider that the first step towards meeting the needs of Woolwich should be the formulation of a scheme for the provision of an independent general hospital of fair size, to which any other kindred objects should be subordinate, and they have announced their readiness, in the event of a representative movement in this direction, to afford substantial assistance.

8. In further connexion with the provision of hospital accommodation in the outlying districts of London the committee are of opinion that the needs of Wimbledon would be better served by one adequate hospital than by two independent institutions for which separate building schemes are proposed.

9. The sum of £5000 voted towards the removal of King's College Hospital to South London increases the total amount contributed by the Fund to this object to £32,000.

10. The reports of the visitors, which every year prove of increasing value, have as heretofore received most careful consideration by the committee, and many of their observations have been brought to the notice of the managers of the hospitals concerned, nor have the committee failed to call attention to instances in which the statistical report affords evidence that considerably greater economy might be exercised without impairment of efficiency.

For the committee,
W. S. CHURCH, *Chairman.*

The details of the awards to the various hospitals are appended to this report.

REPORT OF THE CONVALESCENT HOMES COMMITTEE.

1. The Council have this year placed the sum of £3000 in the hands of the committee for distribution amongst convalescent homes and consumption sanatoria. This makes, with the sum of £1000 set aside last year for consumption sanatoria but not allocated, a total distribution of £4000, as against £5000 provided for in 1908, of which only £4000 was actually distributed.

2. The number of applications eligible for consideration amounted to 37 from convalescent homes and four from consumption sanatoria, as against 33 and five respectively last year.

3. The committee have received new applications from several convalescent homes, to most of which grants are recommended in consideration of the number of London patients admitted during the past year. At the same time the committee have adhered to some extent to their original policy of giving special consideration to the convalescent homes closely connected with London hospitals.

4. The committee regret again to have to report the smallness of the number of applications from consumptive sanatoria, and the very limited opportunities which have hitherto presented themselves for assisting by means of grants in the provision of additional beds for the immediate accommodation of those patients in London hospitals who urgently need country treatment.

5. The committee, however, have under consideration proposals for securing for patients in London hospitals the right of admission to a certain number of beds at a sanatorium now in course of erection. Should this sanatorium upon inspection by the Fund's visitors be found to be eligible for a grant on this basis, the committee hope to be in a position to make a recommendation next year. They trust that this scheme, if successful, may lead to the conclusion of similar arrangements elsewhere, and that this possibility may be borne in mind by the promoters of sanatoria within reach of London. In cases, for instance, where a larger number of beds could be opened at a sanatorium without proportionate additional expenditure upon the administrative sections or increase in the fixed charges, such an arrangement might well result in greater economy in the management of the sanatorium, besides saving the extra cost of erecting and maintaining separate establishments for London patients.

6. The committee would again express their indebtedness to the

visitors who undertook the inspection of consumption sanatoria in the country, and whose reports have been of the greatest value.

For the committee,

WILLIAM LATHAM, Chairman.

The grants recommended to the various institutions are appended to this report.

THE JOHN HERBERT WELLS FUND.

THE following is the eighth list of subscriptions to the John Herbert Wells Fund. Further contributions will be gratefully received by the Earl of Dalhousie and Mr. Julian G. Lousada, honorary secretaries and treasurers of the fund, at 16, Old Broad-street, E.C., or by ourselves at this office:—

	£	s.	d.
Mr. G. M. Inglis	10	0	0
Mr. Alfred Lafone	10	0	0
Mr. C. E. Sebag Montefiore	5	10	0
Honourable G. W. Spencer Lyttelton, C.B.	5	0	0
Collected by Mrs. M. G. Stuffield	2	11	0
Dr. R. H. Robbins	2	2	0
Mr. P. Baker	2	2	0
Dr. Knuthsen	2	2	0
Right Honourable Lord Airedale	2	2	0
The London Horse and Carriage Repository ...	2	2	0
Mr. E. G. J. Moyna ...	2	0	0
Major Arthur E. Smithson, R.A.M.C.	1	1	0
Mrs. W. L. Ainstie ...	1	1	0
Mrs. Arnold Hills	1	1	0
Dr. George Dean	1	1	0
Mr. George Wood	1	1	0
Anonymous (Weybridge)	1	1	0
Dr. S. G. Scott...	1	1	0
H.H. The Ranee of Sarawak	1	0	0
Mr. Gerald H. Hardy ...	1	0	0
Colonel Locock	1	0	0
Mr. Thomas E. A. Baker	1	0	0

ADAMS *v.* POMEROY.

WE have received from Dr. L. Garrett Anderson, 114A, Harley-street, W., honorary secretary of the fund raised to reimburse Dr. Martha Adams the legal expenses in this action, the following list of subscriptions. Dr. Adams incurred over and above the taxed costs in the action brought by her against *Vanity Fair* and others a certain small sum which it is felt that she should not be called upon to pay, and we trust that our readers will help her to discharge the debt.

	£	s.	d.
Dr. Reginald Bligh Wall...	1	0	0
Dr. and Mrs. Maitland Ramsay	1	1	0
Dr. Percy Rose	0	5	0
Dr. W. A. Grogono	0	5	0
Dr. A. E. Kennedy	0	5	0
Dr. C. J. Stocker	0	5	0
Dr. Alice Vowe Johnson...	1	1	0
Dr. Eleanor Lowry	0	5	0
Dr. A. W. Paterson	0	5	0
Major J. L. Marjoribanks, I.M.S.	0	5	0
Dr. G. Bennington Wood	1	1	0
Dr. Herbert R. Spencer...	1	1	0
Dr. Joseph O'Connor ...	0	10	6
Mr. H. Alexis Thomson ...	1	1	0
Dr. Samuel Agnew	1	1	0
Dr. L. Garrett Anderson	2	2	0
Dr. A. M. Edge	1	1	0
Dr. Frank Hinds	1	1	0

MEDICINE AND THE LAW.

Baby Farming Cases.

THE National Society for the Prevention of Cruelty to Children is to be congratulated upon the result of two prosecutions recently carried by it to successful conclusions. In one case Frederick and Kate Walker were convicted of the manslaughter of a child of unknown parentage, apparently about 7 months old, and described by them as "Cissy Bell." She was taken from the home of the prisoners at Tooting to Wandsworth Infirmary, where she was found to be suffering from bronchitis and a fractured thigh. The fracture had occurred some time before and had received no medical attention. The prisoners were proved to have lived recently at nine different addresses during five months, being in the habit of removing their belongings at night to avoid their seizure for rent or in order to elude observation. According to an account given by the male prisoner to an officer of the society, but afterwards declared by him to be untrue, they had recently received £60 for taking two children to New York, where both had died. There were other charges against the accused in connexion with the neglect and ill-treatment of children, but the sentence passed in the case of Cissy Bell at the Central Criminal Court was intended to include these. Each prisoner was sentenced to five years' penal servitude. In the other case referred to, which was heard at the police court at Acton, William Chambers was summoned for neglecting Gladys Carr and Queenie Friend, of the respective ages of 10 and 8 months, in a manner likely to cause them unnecessary suffering and injury. It was a curious feature in the case that when the children were not well medical men were called in, a different one being summoned for each child. The proof of neglect depended upon the evidence of medical witnesses, who showed that the children had suffered severely from malnutrition and dirty surroundings, although the defendant's own family had been well cared for. A sum had been paid down in the case of each "adoption." A fine of £10 was imposed, but the defendant said he would prefer to undergo the alternative offered him of six weeks' imprisonment.

Death due to Ferro-Silicon.

Mr. Justice Walton tried a case at Leeds recently in which the plaintiff was a widow who claimed damages for illness caused to herself and for the loss of her husband. The deceased, a man named Bamfield, owned a canal boat on which lived, besides himself, his wife, his grandson, and a mate. All became ill after, or during, a trip on which they conveyed in the canal boat from Goole to Sheffield a cargo which afterwards was found to consist of casks containing ferro-silicon. The casks came from abroad on board one of the Lancashire and Yorkshire Railway Company's steamers, and were transferred by the railway company to the Goole and Sheffield Transport Company, who in turn employed Bamfield as subcontractor. Bamfield and his grandson died a few days after being taken ill, and at the inquest which followed their deaths were ascribed to ptomaine poisoning. In the action which was brought against the Goole and Sheffield Transport Company it was alleged that the deaths and the plaintiff's illness were due to the gases given off by the ferro-silicon, and that the cargo had been described by the defendants as "scrap or general cargo." This was denied by them, and they further contended that the plaintiff's husband had the same means of knowing the contents of the casks as they had, that the ferro-silicon was not the cause of his death nor of the plaintiff's illness, and that it had been carried in vessels on other occasions without any harm to those on board them. The judge found that the casks of ferro-silicon were dangerous, that Bamfield had no notice of their dangerous nature, and that the plaintiff had proved her case. He awarded her as damages £150 for her own illness, and £175 in respect of the loss of her husband, her claim having been for £300 and £1000. A stay of execution was granted pending a possible appeal.

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Dec. 16th, 1909, with Dr. F. H. Champneys in the chair. A letter was read from the Privy Council, approving the amendments to the rules submitted by the Board with a view to guarding against ophthalmia neonatorum, and suggesting the amendment of Rule E. 19 (3) by the omission of the words "or breech" in line 6. A letter was received from the town clerk of Salford, forwarding a resolution of the town council suggesting that the Municipal Corporations Association should be represented on the Central Midwives Board. A letter was read from the secretary of the Monmouthshire Education Committee, petitioning the Board to allow candidates from Monmouthshire to be examined orally in Welsh, if they so desire. The Board decided that a reply be sent stating that the Board considered that the facilities afforded at Bristol were sufficient. Applications were received from Catherine Weston and Judith Cooper for the removal of their names from the Roll of Midwives on the ground of ill-health. The Board decided that the applications be granted, and that the secretary be directed to remove their names from the Roll of Midwives and to cancel their certificates. On the motion of Mr. Parker Young the following proposed addition to the rules was passed: "The Board may at its discretion, before Oct. 1st, 1910, enrol any woman who, though qualified under Section 2 of the Act, failed to claim the Board's certificate before April 1st, 1905."

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

The County of Norfolk.—Dr. J. T. C. Nash states that the annual reports of the district medical officers of health for the year 1908 show a noticeable improvement in their general character, and he tells us that out of 32 district reports 18 were printed, eight were typed, and six written, a condition which obviously leaves a great deal to be desired in this respect. It is unreasonable to expect a medical officer of health to take as much interest in the compilation of a report which will perhaps be taken as read as in the preparation of a report which is to be printed and circulated. The estimated population of the administrative county of Norfolk for 1908 was 315,655, and of this total 60,488 lived in 12 urban districts and 255,167 in 20 rural districts, a statement which brings out the enormous importance of rural sanitation and housing in an agricultural county such as Norfolk, and, on the other hand, it emphasises the fact that the total population of such an administrative county is, as a whole, considerably below that of our largest towns. The birth-rate of the county for 1908 was 22·88 per 1000 and the corrected death-rate 11·61 per 1000. In connexion with the question of infantile mortality one of the district medical officers of health, Dr. H. H. Back, draws attention to what is in rural districts a well-known fact, but which is not fully appreciated by town dwellers, and that is the difficulty which obtains in procuring a regular supply of cow's milk in rural districts; indeed, there is often a difficulty in obtaining cow's milk at all. Dr. Back points out that this failure to secure cow's milk is not altogether a disadvantage to the country baby, since breast-feeding is thereby encouraged. Dr. Nash reports that the Norfolk Nursing Federation is doing good work in circulating literature relative to the care of babies, but, as he adds, seeing that six weeks is allowed for the registration of births an infant may be dead and buried before its birth is registered—a circumstance which renders the adoption of the Notification of Births Act desirable. The infantile mortality for 1908 was 102·69 per 1000 births as compared with a rate of 121 for England and Wales as a whole, and 110 for England and Wales less the 218 larger towns. There was no case of small-pox in Norfolk during 1908, but Dr. Nash states that the population of the country is gradually becoming less protected as regards vaccination owing to the increase in the number of exemption certificates. In the matter of enteric fever a considerable number of cases were ascribed to the ingestion of shell-fish, and at Wells there was quite a little outbreak of the disease, but whether this outbreak was actually due to the Wells mussels is not quite clear from the report before us. There seems, however, no ground for reasonable doubt that some of the Wells mussels have been liable to pollution by sewage. The county of Norfolk is very poorly provided with isolation hospitals and Dr. Nash has in this particular almost a virgin field for the operation of the Isolation Hospitals Acts. During 1908, out of 1354 cases of scarlet fever, diphtheria, and enteric fever, there were only 19 cases removed to hospital, the only districts having taken advantage of isolation accommodation being Cromer, Walsoken, and Forehoe. Dr. Nash is of opinion that isolation hospitals must be of value, and he adds: "If a disease is infectious and unprotected persons are likely to catch the disease, it is a matter of common sense that efficient isolation of an infected person must reduce his power of infecting others to a minimum. The question is not one of providing hospital accommodation and treatment of any sort or kind, but is one of securing efficient isolation and skilful hospital administration." With reference to schools and infectious diseases it is pointed out that the new code of the Board of Education has introduced modified procedure with respect to school closure and the exclusion of scholars under the authority of the school medical officer, who is defined as "a medical officer named by the local education authority and recognised as such by the Board." The county council of Norfolk being both education authority and higher sanitary authority for the county have, therefore, nominated their county medical officer of health as school medical officer. In Norfolk the county council administers in the administrative county the Sale of Food and Drugs Acts, and for this purpose three inspectors are employed to take samples and submit them to the county analyst. During 1908 there were 138 samples of milk submitted for analysis and of these nearly 9 per cent. were adulterated. We are glad to see that the district councils are becoming more active in the administration of the Dairies, Cowsheds, and Milkshops Order as the result, in part at least, of the reports on the Royal Commission on Tuberculosis.

The City of York.—The population of this city at the middle of 1908 was estimated by the Registrar-General at 85,891, and Dr. E. M. Smith, the medical officer of health, after checking this estimate by the other well-known methods, concludes that the estimate is practically correct. As was the case in so many other towns during 1908, the birth-rate of York for that year was the lowest on record. Of the total births registered 4·5 per cent. were illegitimate, and of the 19 births which occurred in the workhouse no less than 13 were illegitimate, a fact which in itself justifies the recommendation of the Poor-law Commission for greater classification amongst the inmates of workhouses. The corrected death-rate for York during 1908 was 13·28, and of the total number of deaths only one was uncertified either by a medical man or coroner, a circumstance which is probably due in large part to the advocacy by the medical officer of health of reforms in our present system of birth and death registration. Everyone will agree with him that no bodies should be buried without full medical certification and that the certificate should be a confidential document between the practitioner and registrar. Under existing conditions deaths from alcohol, venereal diseases, and certain other conditions, are not unlikely to be attributed to intercurrent affections, and hence the statistics to be vitiated. Infantile mortality in York has evinced an encouraging decrease during the last four years, and for 1908 this rate was 104 per 1000 births—i.e., about one-ninth of the children born failed to keep their first birthday. If the deaths due to premature births be deducted, the infantile mortality rate becomes materially reduced—that is to say, the pre-natal influences amongst the labouring classes are responsible for a large number of deaths. Dr. Smith thinks that the infantile mortality of York should not exceed 70 per 1000 births. Bearing upon this question of pre-natal influences comes the question of illegitimacy, the infantile mortality amongst the illegitimate children during 1908 having been no less than 275 per 1000 illegitimate births, while in one district the rate reached 413. In connexion with the question of still-births arrangements have been made with the registrar of the cemetery for weekly returns concerning each stillbirth sent for interment. Of 121 such interments, 77 were certified for burial by medical practitioners, 39 by registered and 3 by unregistered midwives, and 2 by the coroner after inquest. In one case a registered midwife certified without having witnessed the actual birth, and after an exhumation it was proved that the child had lived a short time after birth, the midwife being censured by the Central Midwives Board for "gross carelessness." The Notification of Births Act, 1907, has proved a decided success during its first year of operation in York, 1723 births out of 1944 having been notified. Reminders and warnings were circulated at the end of the year to those who had failed to notify. The voluntary notification of pulmonary tuberculosis has been in operation since the year 1902, and good work has been done in connexion with the information so obtained. But the medical officer of health is in favour of the introduction of compulsory notification, and among the tuberculosis problems yet to be solved he ranks (*a*) housing; (*b*) the poverty questions inseparably associated with the disease; (*c*) the difficulty of ensuring non-tuberculous milk and meat; (*d*) the provision of sanatoriums for early cases; and (*e*) the provision of isolation hospitals for advanced cases, and he adds that the want of proper feeding and of proper houses are among the principal factors in disseminating tuberculosis. As regards the housing question, we may certainly hope that the Housing and Town Planning Act will soon enable energetic steps to be taken, and we entirely agree that herein is one of the most hopeful steps towards the further reduction of tuberculosis. The administration of the Midwives Act (1902) is proving very successful in York.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 7715 births and 4726 deaths were registered during the week ending Dec. 18th, 1909. The annual rate of mortality in these towns, which had steadily increased in the seven preceding weeks from 12·0 to 16·6 per 1000, declined again to 15·0 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these towns averaged 14·1 per 1000, and in London the mean rate during the same period was equal to 13·8. The lowest annual rates of mortality recorded in the 76 towns during the week were 5·1 in King's Norton, 7·6 in Leyton, and 8·4 in York; the rates in the other towns ranged upwards, however, to 22·2 in Oldham, 22·6 in Burnley, 24·2 in Hanley, and 29·2 in Swansea. In London the recorded death-rate during the week fell to 14·3 per 1000. The 4726 deaths registered in the 76 towns showed a decline of 512 from the numbers returned in the previous weeks, and included 250 which were referred to the principal epidemic diseases, against 297 and 246 in the two preceding weeks; of these 250 deaths, 77 resulted from whooping-cough, 48 from measles, 40 from diarrhœa, 38 from diphtheria, 26 from scarlet fever, and 21 from "fever" (principally enteric), but not one from small-pox. The annual rate of mortality from these epidemic diseases, which had been equal to 0·9 and 0·8 per 1000 in the two preceding weeks, was again so low as 0·8. No death from any of these epidemic diseases was registered during the week in Oldham, Brighton, Southampton, Walsall, Huddersfield, or in 11 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·2 in West Bromwich, Birkenhead, and St. Helens, 2·3 in Rhondda, 3·0 in Hanley, and 3·7 in Swansea. The 77 deaths from whooping-cough in the 76 towns showed a further increase upon the numbers returned in recent weeks, and caused annual rates equal to 1·0 in Sunderland, 1·1 in St. Helens, 1·3 in Birkenhead, and 2·1 in Swansea. The 48 fatal cases of measles exceeded by 1 the number in the previous week; the highest annual rates from this disease being 1·1 in Northampton, 1·6 in Swansea, and 2·3 in Hanley. The 40 deaths attributed to diarrhœa showed a further decline, and were fewer than in any week since the end of May last; they showed, however, a proportional excess in Coventry and Smethwick. The 38 deaths from diphtheria also showed a considerable decline; they included 10 in London and its suburban districts, 3 in Birmingham, 3 in Manchester and Salford, and 2 each in Nottingham, Stockport, Halifax, Leeds, Hull, and Sunderland. Of the 26 fatal cases of scarlet fever, an increase of 4 upon the low number in the previous week, 6 occurred in London and its suburban districts, 3 in Birmingham, and 2 each in Liverpool, Blackburn, Bradford, and Newcastle-on-Tyne. The 21 deaths referred to "fever" also showed a slight increase on the low number in the previous week; 4 occurred in Liverpool, 3 in Manchester and Salford, and 2 both in St. Helens and in Rhondda. The number of scarlet fever patients under treatment in the Metropolitan Asylums and London Fever Hospitals, which had declined in the nine preceding weeks from 2810 to 2475, had further fallen to 2403 on Dec. 18th; 254 new cases of this disease were admitted to these hospitals during the week, against 281 and 266 in the two preceding weeks. The Metropolitan Asylums Hospitals contained 4 small-pox cases on Dec. 18th. Of the 1330 deaths registered in London (fewer by 210 than the number in the previous week), 342 were referred to pneumonia and other diseases of the respiratory system, showing a decline of 90 from the number in the previous week, and being 65 below the corrected average number in the corresponding week of the five years 1904–08. The causes of 42, or 0·9 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Salford, and in 46 smaller towns; the 42 uncertified causes of death in the 76 towns included 5 in Birmingham and 3 each in Liverpool, Sheffield, and Preston.

In 76 of the largest English towns 6520 births and 4854 deaths were registered during the week ending Dec. 25th, 1909. The annual rate of mortality in these towns, which had been 16·6 and 15·0 per 1000 in the two preceding weeks, rose again to 15·4 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these towns averaged 14·2 per 1000, the mean rate in London during the same period being 13·9. The lowest annual rates of mortality recorded in the 76 towns last week were 7·6 in Hornsey, 7·7 in King's Norton, 8·5 in Willesden, 8·9 in Smethwick, and 9·4 in Devonport; the rates in the other towns ranged upwards, however, to 24·6 in Bury, 25·8 in Middlesbrough, 27·0 in Wigan, 29·2 in Swansea, and 29·5 in Hanley. In London the recorded death-rate last week was equal to 15·1 per 1000. The 4854 deaths registered in the 76 towns last week showed an increase of 128 over the number in the previous week, and included 273 which were referred to the principal epidemic diseases, against 297, 246, and 250 in the three preceding weeks; of these 273 deaths 78 resulted from whooping-cough, 53 from measles, 47 from diphtheria, 40 from scarlet fever, 38 from diarrhœa, and 17 from "fever" (principally enteric), but not any from small-pox. The annual rate of mortality from these epidemic diseases last week was equal to 0·9 per 1000. No death from any of these diseases was registered last week in Croydon, Brighton, Stockport, Northampton, or in 11 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 2·8 in Ipswich, 3·4 in Birkenhead, 3·7 in Swansea, and 3·8 in Hanley. The fatal cases of whooping-cough in the 76 towns, which had increased from 61 to 77 in the four preceding weeks, further rose to 78 last week, and caused death-rates equal to 1·0 in West Ham, 1·1 in Swansea, and 1·4 in Ipswich and in Halifax. The deaths attributed to measles, which had numbered 53, 47, and 48 in the three preceding weeks, increased to 53 in the week under notice; the highest death-rates from this disease were 1·1 in Swansea, 1·4 in Ipswich, 2·6 in Birkenhead, and 3·0 in Hanley. The fatal cases of diphtheria, which had declined from 58 to 38 in the four preceding weeks, rose again to 47 in the week under notice and included 12 in London and its suburban districts and 3 in Hull. The deaths from scarlet fever, which had been 41, 22, and 26 in the three preceding weeks, further rose to 40 last week, and caused death-rates ranging upwards to 1·1 in St. Helens and 1·2 in Wigan. The 38 deaths from diarrhœa were 2 fewer than the number in the previous week, and showed the greatest proportional excess in Walsall, Rotherham, and Swansea. The 17 deaths referred to "fever" were 4 fewer than the number in the preceding week, and included 2 each in London, Birmingham, Leeds, Salford, and St. Helens. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined during the 10 preceding weeks from 2810 to 2403, had further fallen to 2361 on Saturday last; 224 new cases of this disease were admitted last week, against 281, 266, and 254 in the three preceding weeks. The Metropolitan Asylums Hospitals contained 4 cases of small-pox on Saturday last. Of the 1399 deaths registered in London last week 332 were referred to pneumonia and other diseases of the respiratory system, against 432, 417, and 342 in the three preceding weeks; these 332 deaths were 2 above the corrected average number in the corresponding week of the five years 1904–08. The causes of 38, or 0·8 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Leicester, Nottingham, and in 46 other smaller towns; the 38 uncertified causes of death in the 76 towns last week included 4 in Liverpool, 4 in Bootle, 3 in Birmingham, 3 in Warrington, and 2 each in London, Manchester, Rochdale, Coventry, and Barrow-in-Furness.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 868 births and 700 deaths were registered during the week ending Dec. 18th, 1909. The annual rate of mortality in these towns, which had been equal to 24·2, 22·3, and 23·8 per 1000 in the three preceding weeks, declined to 19·6 during the week. During the first 11 weeks of the current quarter the annual death-rate in these Scotch towns averaged 17·4 per 1000,

and exceeded by 3·3 the mean rate during the same period in the 76 largest English towns. The annual death-rates in the week under notice in these Scotch towns ranged from 12·5 and 12·8 in Paisley and Leith, to 18·8 in Dundee and 23·0 in Glasgow. The 700 deaths from all causes in the eight towns during the week showed a decline of 151 from the high number in the preceding week, and included 76 which were referred to the principal epidemic diseases, against 88 and 127 in the two previous weeks. These 76 deaths were equal to an annual rate of 2·1 per 1000; the mean annual rate from the same diseases in the 76 English towns did not exceed 0·8 per 1000. The 76 deaths from these diseases in the Scotch towns during the week included 46 from measles, 9 from whooping-cough, 7 from diarrhœa, 6 from scarlet fever, 5 from diphtheria, and 3 from "fever," but not one from small-pox. The fatal cases of measles, which had been 49, 43, and 64 in the three preceding weeks, declined again to 46 in the week under notice, of which 42 occurred in Glasgow and 4 in Edinburgh. The 9 deaths from whooping-cough showed a considerable decline from recent weekly numbers, and included 4 in Edinburgh and 3 in Glasgow. The 7 deaths attributed to diarrhœa were fewer than in any recent week; 4 were returned in Glasgow and 2 in Dundee. The 6 fatal cases of scarlet fever included 3 in Aberdeen and 2 in Glasgow; and 4 of the 5 deaths from diphtheria occurred in Glasgow. Of the 3 deaths referred to "fever," 2 were returned in Glasgow and 1 in Edinburgh. The deaths referred to diseases of the respiratory system in the eight towns, which had been 298, 265, and 275 in the three preceding weeks, declined to 215 in the week under notice, but exceeded by 114 the number returned in the corresponding week of last year. The causes of 20, or 2·8 per cent., of the deaths in the eight towns were not certified or not stated; in the 76 English towns the proportion of uncertified causes of death during the week did not exceed 0·9 per cent.

In eight of the principal Scotch towns 807 births and 697 deaths were registered during the week ending Dec. 25th, 1909. The annual rate of mortality in these towns, which had been 23·8 and 19·6 per 1000 in the two preceding weeks, further declined to 19·5 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these Scotch towns averaged 17·6 per 1000, and exceeded by 3·4 the mean rate during the same period in the 76 largest English towns. The annual death-rates last week in these Scotch towns ranged from 14·4 in Greenock and 15·5 in Aberdeen, to 22·6 in Perth and 23·4 in Dundee. The 697 deaths from all causes in the eight towns last week showed a decline of three from the number in the previous week, and included 86 which were referred to the principal epidemic diseases, against 88, 121, and 76 in the three preceding weeks. These 86 deaths were equal to an annual rate of 2·4 per 1000; the mean death-rate from the same diseases in the 76 English towns last week did not exceed 0·9 per 1000. The 86 deaths from these diseases in the Scotch towns last week included 42 from measles, 13 from diarrhœa, 11 from diphtheria, 10 from whooping-cough, 6 from scarlet fever, and 4 from "fever," but not one from small-pox. The fatal cases of measles, which had been 64 and 46 in the two preceding weeks, further declined to 42 in the week under notice, and included 34 in Glasgow and 6 in Edinburgh. The deaths from diarrhœa, which in the four preceding weeks had declined from 16 to 7, rose again last week to 13, of which 5 occurred in Glasgow, 4 in Dundee, and 2 in Edinburgh. The fatal cases of diphtheria, which had been 14 and 5 in the two preceding weeks, increased to 11 last week, and included 7 in Glasgow and 2 in Edinburgh. The deaths from whooping-cough, which had been 17, 16, and 9 in the three preceding weeks, rose last week to 10, of which 8 were registered in Glasgow. The 6 fatal cases of scarlet fever corresponded with the number in the previous week, and included 4 in Glasgow. The 4 deaths from "fever," including 3 cases of enteric and 1 of cerebro-spinal meningitis, were all registered in Glasgow. The deaths referred to diseases of the respiratory system in the eight towns, which had been 275 and 215 in the two preceding weeks, further declined last week to 173, but were 58 in excess of the number registered in the corresponding week of last year. The causes of 20, or 2·9 per cent., of the deaths in the eight towns last week were not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,142,308 persons, 556 births and 475 deaths were registered during the week ending Dec. 18th, 1909. The mean annual rate of mortality in these towns, which had been equal to 20·1 and 23·2 per 1000 in the two preceding weeks, declined again to 21·7 in the week under notice. During the first 11 weeks of the current quarter the annual death-rate in these Irish towns averaged 18·6 per 1000, whereas the mean rate during the same period did not exceed 14·1 in the 76 largest English towns, and 17·4 in the eight principal Scotch towns. The annual death-rate during the week was equal to 19·4 in Dublin, 23·9 in Belfast, 23·3 in Cork, 18·1 in Londonderry, 15·0 in Limerick, and 23·1 in Waterford; the mean annual rate in the 16 smallest of the Irish town districts was equal to 22·6 per 1000. The 475 deaths from all causes in the 22 town districts during the week showed a decline of 33 from the number returned in the previous week, and included 26 which were referred to the principal epidemic diseases, against numbers increasing from 18 to 31 in the four preceding weeks; these 26 deaths were equal to an annual rate of 1·2 per 1000; in the 76 English towns the mean rate from the same diseases did not exceed 0·8, but in the eight principal Scotch towns it was equal to 2·1 per 1000. The 26 deaths from these epidemic diseases in the Irish towns in the week under notice included 16 from whooping-cough, 4 from diarrhœa, 2 from scarlet fever, 2 from diphtheria, and 1 each from measles and "fever," but not one from small-pox. The 16 fatal cases of whooping-cough showed a decline of 3 from the number in the previous week, and included 3 in Belfast, 4 in Tralee, and 2 in Dublin. Of the 2 deaths from scarlet fever, 1 each occurred in Dublin and Cork; and both the fatal cases of diphtheria occurred in Dublin. The death referred to enteric fever was returned in Drogheda. The deaths in the 22 town districts referred to pneumonia and other diseases of the respiratory system, which had been 101, 157, and 162 in the three preceding weeks, declined to 83 in the week under notice. The causes of 21, or 4·4 per cent., of the deaths registered during the week in the Irish towns were not certified; in the 76 English towns the proportion of uncertified causes of death did not exceed 0·9 per cent., while in the eight principal Scotch towns it was equal to 2·8 per cent.

During the week ending Saturday, Dec. 25th, 1909, 135 births and 150 deaths were registered in Dublin. The annual rate of mortality, which had been 22·1, 22·0, and 19·4 per 1000 in the three preceding weeks, rose again last week to 19·6 per 1000; the mean rate during the first 12 weeks of the current quarter was 19·5 per 1000, whereas in London the mean rate for the same period did not exceed 13·9 per 1000. The 150 deaths from all causes last week included 2 from whooping-cough, 2 from "fever," and 1 from scarlet fever, but not any from small-pox, measles, diphtheria, or diarrhœa; the 5 deaths from these principal epidemic diseases were equal to a rate of 0·7 per 1000, the rates in the two preceding weeks having been 1·2 and 0·9 respectively. One inquest case and 2 deaths from violence were registered, and 68, or 45 per cent., of the deaths occurred in public institutions. The causes of 7, or nearly 5 per cent., of the deaths in Dublin last week were not certified.

In Belfast 170 births and 144 deaths were registered during the week under notice. The annual rate of mortality, which had been 29·4 and 23·9 per 1000 in the two preceding weeks, further declined last week to 19·4 per 1000, and averaged 18·5 during the first 12 weeks of the current quarter. The deaths included 11 which were referred to the principal epidemic diseases last week, against 18 and 10 in the two preceding weeks; of these 11 deaths 10 were attributed to whooping-cough and 1 to diarrhœa. Ten inquest cases and 6 deaths from violence were registered during the week, and 28 deaths occurred in public institutions. The causes of 2 of the deaths in Belfast last week were not certified. No death from cerebro-spinal fever was registered in either Dublin or Belfast.

THE WATER-SUPPLY OF HOLSWORTHY (DEVON).—At the last meeting of the Holsworthy urban council it was stated that the new water scheme was practically completed. The total cost of the undertaking was £7140.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: P. B. Handyside to the *Minotaur*, on recommissioning; and T. Austen to the *Vernon*. Staff-Surgeons: E. Cox to the *Minotaur*, on recommissioning; C. E. C. Stanford to the *Jupiter*; J. G. Watt to the *Mars*; R. St. G. S. Bond to the *Victory*, additional, for disposal; R. B. Scribner to the *Terror*, additional, and to the *Alert*, on commissioning; J. Verdon to the *Kinsha*, on recommissioning; and W. P. Dyer to the *Edgar*, for medical charge on voyage home. Surgeons: S. S. H. Shannon to the *Leda*; A. R. Fisher to the *Minotaur*, on recommissioning; A. Davidson to the *Cæsar*; G. C. Cross to the *Hannibal*; N. H. Mummery to the *Pembroke*, additional, for disposal; H. C. Devas to the *Cornwall*, on recommissioning; W. H. Edgar to the *Snipe*, G. G. Vickery to the *Britomart*, B. R. Bickford to the *Thistle*, A. J. MacDiarmid to the *Waterwitch*, C. F. Bainbridge to the *Widgeon*, R. P. M. Roberts to the *Teal*, G. A. Jackson to the *Woodcock*, all additional, and on recommissioning; H. W. Nicholls to the *Moorhen*; M. P. Fitzgerald to the *Robin*; A. G. Malcolm to the *Implacable*; J. H. Burdett to the *Superb*; A. A. Sanders to the *Indomitable*; M. J. Laffan to the *Edgar*, for duty on voyage out, to join at Gibraltar, and to the *Bramble*, on recommissioning; G. F. Syms to the *Bellerophon*; C. Ross to the *Woodlark*, on recommissioning; and W. P. Hingston to the *Pembroke*, additional, for disposal, and to the *Patrol*.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel C. Birt is appointed for duty at the Royal Army Medical College. Lieutenant-Colonel R. Porter, from Administrative Medical Officer at Belfast, is appointed Principal Medical Officer in the Western Command, vice Colonel G. T. Goggin. Lieutenant-Colonel E. H. Lynden Bell is appointed to command the Station Hospital, Meerut, and Major H. I. Pocock to command the Station Hospital, Shahjehanpore. Captain J. G. Gill, doing duty in Peshawar Station Hospital, is appointed to the command of No. 1 British Field Hospital in addition to his other duties. Lieutenant-Colonel M. T. Yarr, from Dublin, is appointed Medical Inspector of Recruits in the Scottish Command. Colonel T. M. Croker, Principal Medical Officer, Scottish Command, is appointed Principal Medical Officer, Egypt. Colonel T. P. Woodhouse, in charge of the Royal Victoria Hospital, Netley, is appointed Principal Medical Officer, Scottish Command. Lieutenant-Colonel G. D. Hunter, D.S.O., is appointed Commandant, Royal Army Medical Corps School of Instruction at Aldershot. Colonel M. W. Kerin, serving in India as Principal Medical Officer, Bareilly and Garhwal Brigades, is appointed to officiate as Principal Medical Officer, 8th (Lucknow) Division. Lieutenant-Colonel G. H. Barefoot, who is serving in India, is appointed to officiate as Principal Medical Officer, Bareilly and Garhwal Brigades, and to command the Station Hospital at Bareilly. Captain Seccombe is appointed as specialist in the prevention of disease to the Brigade Laboratory, Jullundur. Major C. R. Elliot is appointed Sanitary Officer, Lahore Division.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotions:—To be Major (dated July 28th, 1909): Captain Thomas Henry Delany. To be Captain (dated Sept. 1st, 1909): Lieutenant Joseph Frain James (provisionally).

The King also has approved of the retirement of the following officers:—Lieutenant Colonel Thomas David Collis Barry (dated Nov. 18th, 1909). Lieutenant-Colonel Edwin Harold Brown (dated Nov. 10th, 1909).

Major Sutherland reverts to the Central Provinces. The services of Captain Shaw and Captain O'Neill are replaced at the disposal of the Commander-in-Chief. Captain Wilson reverts to military duty. Captain V. A. Whiteman has been appointed to the substantive medical charge of the 3rd Brahmins, vice Captain MacKelvie, transferred permanently to the Civil Department. Lieutenant Armytage is appointed specialist in midwifery and diseases of women and children, Burma Division. Captain White is appointed specialist in operative surgery, 8th Lucknow Division.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Supplementary List: The undermentioned to be Lieutenants (on probation):—Gordon Reginald Ward (dated Nov. 26th, 1909), and Ronald MacKinnon (dated Dec. 7th, 1909). George Henry Usmar (late Lieutenant, Royal Army Medical Corps) to be Lieutenant, with seniority as from August 24th, 1908 (dated Oct. 29th, 1909). The undermentioned to be Lieutenants (on probation): John Inkster (dated Nov. 24th, 1909), Ian Dunbar Dickson, John McGregor Scott, Thomas Errol Guthrie, William Thomson Graham, and Charles Stewart Sandeman (dated Dec. 17th, 1909).

TERRITORIAL FORCE.

Royal Army Medical Corps.

5th London Field Ambulance: Captain Ernest B. Dowsett to be Major (dated Dec. 22nd, 1909).

3rd Lowland Field Ambulance: Lieutenant Henry A. Leebody to be Captain (dated Nov. 19th, 1909).

2nd West Riding Field Ambulance: Francis George Dobson to be Lieutenant (dated Nov. 13th, 1909).

3rd Wessex Field Ambulance: Leslie Rawes to be Lieutenant (dated Nov. 10th, 1909).

Attached to Units other than Medical Units.—Captain Henry W. Williams resigns his commission (dated Sept. 17th, 1909). Lieutenant Hugh K. Lacey resigns his commission (dated Nov. 7th, 1909).

For attachment to Units other than Medical Units.—Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel John Adam, from the 1st (Ross Highland) Volunteer Battalion, Seaforth Highlanders (Ross-shire Buffs, The Duke of Albany's), to be Lieutenant-Colonel, with the honorary rank of Surgeon-Colonel, with precedence as in the Volunteer Force (dated April 1st, 1908).

1ST SOUTHERN GENERAL HOSPITAL, R.A.M.C. (T.).

Lieutenant-Colonel Jordan Lloyd and the officers entertained the men of this unit, as well as a large number of R.A.M.C.(T.) officers, to supper on Dec. 18th. After the toast of the King had been honoured and Lieutenant-General Raitt, the officer commanding the South Midland Division had presented some prizes to the men, the toast of "The 1st Southern General Hospital" was proposed by Lieutenant-General Raitt and responded to by Lieutenant-Colonel Jordan Lloyd. The remaining toast, that of "The Visitors," was proposed by Lieutenant-Colonel Gilbert Barling and was responded to by Colonel Whitcombe, who commands the medical units of the South Midland Division, and to whose enthusiasm and energy the complete equipment and efficiency of the hospital is so greatly due.

DEATHS IN THE SERVICES.

Surgeon-Major Thomas Egerton Hale, V.C., C.B., A.M.D. (retired), quite recently. He entered the service as assistant surgeon in 1854, became surgeon in 1867, and retired on half-pay with the rank of surgeon-major in 1876. He served with the 7th Fusiliers in the Crimean campaign from Jan. 25th, 1855, including duty in the trenches during the bombardments of Sebastopol and the assaults of the Redan (Victoria Cross, medal with clasp, and Turkish medal). He was awarded the Victoria Cross "(1) for remaining with an officer who was dangerously wounded, in the fifth parallel, on the 8th September, 1855, when all the men in the immediate neighbourhood retreated excepting Lieutenant William Hope and Dr. Hale, and for endeavouring to rally the men in conjunction with Lieutenant Hope; (2) for having on the 8th September, 1855, after the regiments had retired into the trenches, cleared the most advanced sap of the wounded, and carried into the sap under a heavy fire several wounded men from the open ground, being assisted by Sergeant Charles Fisher." He was also in medical charge of a field force under Colonel Blunt during the Indian Mutiny. In 1907 he was made a Commander of the Bath, and at the same time received the honorary rank of Surgeon-Lieutenant-Colonel.

The King of Italy has conferred the Order of Commander of the Crown of Italy upon Major G. S. Crawford, R.A.M.C., and Chevalier of the same Order upon Captain H. S. Anderson, Captain H. C. Winkworth, and Captain P. A. Jones, of the Royal Army Medical Corps, and Surgeon-Captain R. Randon, Royal Malta Artillery, in recognition of

their services with the Field Ambulances which proceeded from Malta to the earthquake disasters in Sicily and Calabria last January. The decorations were recently presented to these officers by His Excellency the Governor and Commander-in-Chief of Malta.

It has been notified that the tour of service for Royal Army Medical Corps officers on the West Coast of Africa (Sierra Leone) will in future be made up as follows: One year on the Coast followed by six months' leave, then a second year on the Coast followed by another six months' leave. Double service for pension will be counted for the actual periods on the Coast—i.e., two years on the Coast will count as four years' service towards retirement.

Correspondence.

"Audi alteram partem."

THE POOR-LAW MEDICAL SERVICE IN FRANCE.

To the Editor of THE LANCET.

SIR,—Your article on the above subject published in THE LANCET of Dec. 18th last is interesting, and a worthy contribution to the present controversy in this country as to what shape Poor-law medical reform should take. But there is, in my opinion, some danger in taking the institutions of a particular nation, however excellent they may be, and imagining they may be adopted by another with equal advantage. This would be the case even when the above-mentioned institutions have been in work for a considerable time, so that their efficiency has been well tested; but the danger is enhanced when they are quite novel, and have not been exposed to the test of experience. If our early attempts at Poor-law legislation had been taken as examples for imitation by a foreign nation, I cannot help thinking the result would have been eminently unsatisfactory; and the experience of centuries puts us in a much better position for understanding Poor-law problems than our neighbours across the Channel. The apparent unanimity of our French brethren with regard to this new and untried system does not appear to me very cogent. After they have given it a reasonable trial they may be as dissatisfied as they now appear content with it. I propose, with your permission, to deal with one or two points which would seem to have met with the approval of my French brethren, but which I do not think would be regarded with as much favour by many of the practitioners of this country.

1. *Free choice of doctor.*—Where the patient pays for the doctor his right of selection cannot be questioned, and the interests of the public and the medical profession depend on this right being jealously guarded and maintained under all circumstances. But when the patient does not pay does the same rule hold? With all deference to Dr. Proby, I think not. If an individual joins a club or provident society, if he goes to a charity or asks the assistance of an institution that has special officers, has he the right of choosing the doctor whom he wishes to consult? It is true, in the case of hospitals, he can select a certain day when a particular doctor usually attends, but that is not the same as possessing the right to select a particular doctor. Why, then, should it be different when the State appoints the doctor? If the principle of a free choice of doctor were adopted it would revolutionise all the public services. Every postman would claim to choose his doctor and for sentimental reasons the efficient and economical working of public departments would be seriously jeopardised. With regard to the claims of the necessitous poor to choice of doctor, I think it is unnecessary to add anything to the criticism of the Minority Commissioners on this subject. Their condemnation of the principle is sound and unanswerable.

2. *Abolition of gratuitous attendance on the poor, which falls to the lot of every practitioner.*—That there might be a considerable reduction of this to the advantage of the public and the profession all of us are ready to admit; but the remedy might be worse than the disease. Personally, I am convinced that any system, which permitted all "poor" persons, without difficulty, to get their medical attendance at the expense of the State, even if the doctor, as in France, got a pittance for each State patient, would largely injure all private practice among the poor. The loss of the doctor through poor patients, who had hitherto paid him, being tempted to avail themselves of State aid would far outweigh the loss through gratuitous work he had before been in the habit of doing. Most of us have seen examples of this in the case of doctor's clubs, which had been started to meet the needs of those unable to pay his usual fees; as also in the case of many provident dispensaries, the doctor, or doctors, soon found that these institutions were utilised by many of their paying patients, so that the loss from the latter ceasing to be private patients was not made up by the enrolment of their former gratuitous patients on the dispensary. The power of the doctor, unable to recover his fees, to put the patient on the public list—that is, to make him a pauper—however it might answer in France, would hardly be acceptable in this country.

3. *It is sound economy to see that the sick poor have medical attendance early.*—No one disputes the general truth of this, but the difficulty lies in its application. To seek to do it in some of the ways that are authoritatively suggested are, in my opinion, anything but sound economically. It has been seriously proposed that inspectors should make domiciliary visits throughout poor quarters, to seek out the sick, whether they desire this attention or not. Many of the well-to-do suffer from lack of early medical attendance, equally bad for the State, but it is not proposed to make domiciliary visits in their case.

4. *The poor will naturally select the practitioner who treats them with the greatest kindness.*—Can there be any doubt of this, although it would be more accurate to say, "who panders most to their particular tastes," often a different thing from treating them kindly? Again, I should have thought it very difficult to "establish beforehand what sort of prescriptions may be made." It seems to me that in any State service the doctor must have a particularly free hand. It is a mistake also to suppose that if the emoluments are small there will necessarily be little or no competition for the posts. Where a profession is generally poorly paid, and is possibly overstocked, there must often be keen competition to get a bare living, especially where the relations between the profession and the public are so profoundly altered, as must necessarily be the case in any such system as now being developed in France, or that proposed by the Poor-law Commissioners in this country. The editor of the *Health Review* (Mrs. Hodgkinson), writing in the *British Medical Journal* last week, says: 'The ideal is, of course, State payment of the profession, and *this is bound to come.*" The italics are my own, but I cannot help fearing that this must be the inevitable end of State medical relief organised on the above principles. Their promoters, I believe, desire this, but I think there must be many like myself who regard the socialisation of medicine with the gravest concern, and, far from deeming it will exalt and elevate our profession, believe it more likely to lower and debase it by the ruin of its independence and the removal from it of that incentive which has hitherto tended to draw into its ranks a large proportion of the best intelligence of the community.

I am, Sir, yours faithfully,

MAJOR GREENWOOD,
Honorary Secretary, Poor-law Medical Officers' Association of England and Wales.

Copthall-avenue, E.C., Dec. 18th, 1909.

A DOUBTFUL CASE OF SCARLET FEVER OR INFLUENZA.

To the Editor of THE LANCET.

SIR,—The "doubtful" case of scarlet fever or influenza reported in THE LANCET of Sept. 18th, p. 864, by Dr. Andrew Dunlop, is of much interest though not unique. I quite agree with Dr. Dunlop's view and with your remarks thereon, that the case was one of influenza with a scarlatiniform rash. In Dr. T. Thompson's "Annals of Influenza" (Syd. Soc.) Dr. Heberden is quoted as having said that he saw, in 1775, two persons (with influenza) who had eruptions on their skins resembling scarlet fever. A letter from Dr. R. Hamilton is also republished in the same volume, dated 1787, wherein it is mentioned that at Bath cases of influenza were seen with a rash and red sore throat, and that Dr. Falconer considered

that they showed a similarity between influenza and scarlet fever, as described by Dr. Withering of Birmingham.

Besides these cases of ancient date others have been observed since. In the great epidemics of influenza which visited London in 1890 and 1891 I myself saw a few cases which corresponded exactly with that described by Dr. Dunlop. In the spring of 1891 I remember well two children in one family affected at the same time while influenza was prevalent. Each had a rash exactly like that of a mild case of scarlet fever. The tonsils were swollen but the throat was not particularly red, and the tongue did not become suddenly and entirely clean in the manner characteristic of scarlet fever, nor was there any noticeable desquamation. The cases were very puzzling at first, but I soon had no hesitation in regarding them as influenza. Some other peculiar types were also occasionally met with in the same epidemic. 1. The dengue form, marked by agonising pains in the limbs. If I recollect aright, these cases evoked a letter in the *Times* from some one who had been familiar with dengue in the East, suggesting the identity of the two diseases. 2. The comatose form. A few cases that I remember very distinctly, mostly in elderly women, fell into a state of deep stupor, almost coma, which looked very serious; however, they all woke up and recovered in a week's time. 3. The intestinal form, which sometimes developed into severe enteritis.

It seemed to me that influenza had, and has, a weekly periodicity. Ordinary cases usually last one week (though the period would be shorter in very young infants), and relapses and recurrences set in just after the end of the first or even of the second week. I also noticed that the cases of pneumonia complicating influenza, which set in with a tolerably free hæmoptysis, did much better and were more sure to recover than those wherein that symptom was absent.

I am, Sir, yours faithfully,

F. LUCAS BENHAM, M.D., M.R.C.P. Lond.

Exeter, South Australia, Nov. 7th, 1909.

THE CONGENITAL FACTOR IN HERNIA.

To the Editor of THE LANCET.

SIR,—I have been much interested in reading Mr. Edward Deanesly's letter in THE LANCET of Dec. 18th, p. 1852, on the Congenital Factor in Hernia, since, like him, I am a firm believer in the truth of Hamilton Russell's theory. Of many cases which have led me to this belief one in particular is worth mentioning, and although I have never published the notes I have frequently referred to it in the course of clinical teaching. In 1901 I had occasion to explore the abdomen of a woman, 47 years of age, in the Hospital for Women. In the course of the operation it was apparent that she was the subject of well-marked Glénard's disease. Before closing the abdomen I took the opportunity to examine the inguinal regions and sites of the femoral canals from within, and, much to my astonishment, found that *all four rings were patent and would admit the little finger for about an inch or more* without any difficulty. Here was a patient well advanced in life with four patent rings transmitting four peritoneal diverticula, and yet so far as she was aware none of these had ever contained any viscus, and, as I know from having kept her in close observation, none of them have done so since.

I quite agree with Mr. Deanesly that if Russell's theory is correct, which I feel convinced it is, our methods of operation will have to be modified, but not, I think, to the extent he suggests. In many cases of inguinal hernia where a so-called acquired sac exists in a young man or boy, one sees a marked weakness of the inguinal canal, consisting either of deficiency of muscular fibres at this point or of abnormally high origin of the internal oblique muscle. This I have always looked upon as part and parcel of the congenital defect, since the muscular development in other parts may be perfect. Now, whether or no Russell's theory is correct, there is no question about the capacity of unsupported peritoneum to stretch; one sees it repeatedly in the case of direct herniæ, where the trouble consists merely of a prominent bulging of the peritoneum without the actual presence of anything that can be called a sac. This tendency to stretch becomes much more marked where the application of a ligature has resulted in the conversion of normal into cicatricial peritoneum. It is for this reason that I consider it would be a grave mistake to allow the saccular theory, which I personally welcome, to blind our eyes to another aspect of the etiology of hernia. The *occurrence* of hernia *may* be due to the presence of a congenital sac; it probably is in most cases; but the *cure* undoubtedly depends in many such cases on something more than the simple removal of that sac. As regards statistical information I trust that Mr. Deanesly will not think me unduly pessimistic if I place but little faith in the factor in which he seems to place so much—viz., the voluntary return of patients to report their recurrences as a criterion of the success of the operation he advocates. My experience (not a slight one of this particular operation) and I think that of most other surgeons is that patients who suffer from recurrence very frequently drift into other hands and say nothing about having done so. I am sure many operators would be surprised at the number of their cases which have recurred and found their way into my own and my colleagues' wards, just as I myself would probably be, did I know the truth about my own cases. The parable of the ten lepers is as true to-day as in the days of old, whether one applies it to the cure or the recurrence of hernia.

Personally, I agree readily with Mr. Deanesly as regards operations on quite young subjects, but in adults, even when their herniæ are of moderate dimensions, a well performed Bassini is as necessary as I believe it to be harmless. As regards femoral hernia, I think that he is entirely justified in his opinion that anything further than removal of the sac is unnecessary. The femoral canal, unlike the inguinal canal, has no natural muscular protection: presumably therefore it does not require one; removal of the sac *or sacs* should therefore suffice to cure the hernia.

Mr. Deanesly has, I think, done well in championing Hamilton Russell's theory; at the same time I think surgeons should be warned, while accepting that theory, of allowing themselves to be carried away by it to irrational conclusions. Although most cases of hernia are certainly due to the presence of a preformed sac, it is just as certain that many others are not; and although many cases may be cured by simple removal of the sac, there are again many which cannot be so cured. In the interests of surgical progress it would be as much a matter of regret if in our willingness to accept the saccular theory as an explanation of *all* cases of hernia we abandoned Bassini's operation as unnecessary, as if we persistently applied that excellent operation to cases in which it is quite unsuitable. Briefly, different degrees of hernia require different methods of treatment. In my opinion no hernia is incurable; but all herniæ cannot be cured in the same way.

I am, Sir, yours faithfully,

LAWRIE MCGAVIN, F.R.C.S. Eng.

Mansfield-street, W., Dec. 17th, 1909.

DANGEROUS HAIR DYES.

To the Editor of THE LANCET.

SIR,—It is an ethical question how far the medical profession is responsible for injuries which a timely warning might have prevented. Within the last few months a good deal has been written in the various medical and chemical journals with reference to a chemical much in use among manufacturers of hair dyes, the poisonous properties of which are well recognised. THE LANCET of Dec. 11th, p. 1795, states that in several instances death has resulted from the use of paraphenylene-diamine in hair dyes, and during the present year the *Journal of the American Association* reports several cases of poisoning due to the same cause. It mentions that warnings against preparations containing this chemical have been issued by the Government of Saxony, and quotes from the *Pharmazeutische Zentralhalle* (p. 190). The preparations there mentioned are now on sale in London, and are represented as "essentially hygienic and guaranteed to be free from lead, silver, copper, or mercury"; in other instances they are represented to be vegetable hair colourings. On p. 1307 of the *Journal of the American Association* it is stated that 21 cases of poisoning arising from the use of this chemical in the hair dyes have been reported.

In the *Journal of Dermatology* (December, 1905) an article appeared dealing with "teak dermatitis." It appears that for several years the term "teak" was applied to various woods. In THE LANCET of April 25th, 1896, p. 1193, in

answer to a question on the subject, the writer was informed that such a condition was unknown as having been caused by teak. This was subsequently confirmed in a later issue. After the article appeared in the *Journal of Dermatology* the use of poisonous wood was transferred to Lancashire, where it was employed for shuttle-making. The shuttle-makers inhaled the wood dust and several deaths occurred, after which steps were taken to prevent these woods being used.

My object in writing on the subject of the use of poisonous chemicals in the preparation of hair dyes is because a Departmental Committee is now sitting at the Home Office which will take notice of the use of petroleum for the purpose of dry shampoo; and it would be well if its sphere of inquiry were extended so as to include all poisonous or dangerous chemicals sold for application to the scalp or hair. If after the correspondence and repeated warnings of those under whose notice these cases come the matter is disregarded and the sale of paraphenylene-diamine is allowed under false trade descriptions until fatal cases call public attention to its dangers, the responsibility is removed from the medical profession and any evil consequences which may ensue rest with the authorities that permit its sale, and equally with the manufacturers and vendors—one for making dyes which they have been warned are dangerous, the other for selling them without guarantee or inquiry as to their composition, and misleading the purchasers by false descriptions.

I am, Sir, yours faithfully,

Stratford-place, W., Dec. 21st, 1909. T. P. BEDDOES.

THE RESEARCH DEFENCE SOCIETY AND THE GENERAL ELECTION.

To the Editor of THE LANCET.

SIR,—In view of the General Election, we desire to call the attention of all Parliamentary candidates to the work of the Research Defence Society. It was founded in January, 1908, to make generally known the facts as to experiments on animals in this country and the regulations under which they are conducted; the immense importance of such experiments to the welfare of mankind; and the great saving of human life and health which is already due to them. We hope that all candidates for Parliament who may desire to acquaint themselves with these facts will communicate with the Honorary Secretary, Research Defence Society, 70, Harley-street, W. He will be happy to supply them with literature and to answer all inquiries.

We would also remind them that the Royal Commission, though it has published all the evidence, has not yet published its final report and recommendations to Government; and we hope that those candidates who may be unable at present to declare themselves in sympathy with our society will at least preserve an open mind till the report has been published.—We remain, Sir, yours faithfully,

CROMER, President,
SYDNEY HOLLAND, Chairman of Committee.
F. M. SANDWITH, Honorary Treasurer.
STEPHEN PAGET, Honorary Secretary.

Dec. 28th, 1909.

THE BRITISH MEDICAL BENEVOLENT FUND AND GUILD.

To the Editor of THE LANCET.

SIR,—The tragic fate of Dr. Wells of St. Mary's Hospital, whose death last October at the age of 30 years was caused by contracting glanders in the exercise of his duties, aroused the sympathy of the public and has drawn attention to the dangers to which all medical men are exposed in the pursuit of their profession. Accident or disease may cut short the career of a medical man, or other adverse circumstances may prevent him from making any provision for old age, so that he himself and those dependent upon him may be left in actual want and even encumbered with debt. Speaking at a meeting in support of the Fund held at the Royal College of Physicians in February last, the Bishop of Oxford said: "I do not think there is any profession in which a man is compelled, without any choice of his own, without any chance of escape, to run so great a risk of inevitable impoverishment for himself and for his family. ..... He really risks his all upon his health."

To meet such contingencies the British Medical Benevolent Fund was instituted in the year 1836: (1) to make grants of money to distressed members of the medical profession, their widows or orphans; and (2) to provide annuities for such after they have reached the age of 60 years. During these 73 years the Fund has expended £70,000 in grants and rather more than this sum in annuities. At the present time the Fund is supporting 126 annuitants, who receive from £20 to £26 a year each; and in addition makes grants to others not yet eligible for annuities, spending in this way an aggregate of nearly £5000 a year, the working expenses being under 6 per cent. Yet the demands upon the Fund far exceed its resources, and much-needed help has frequently to be denied to applicants approved by the committee. A Woman's Guild has recently been established in connexion with the Fund to supplement the money grants of the Fund by gifts of clothing and coals and other additional comforts, and by personal service to add a warmer touch of human sympathy.

At the meeting above referred to the Lord Mayor of London, after drawing attention to the economic value of the services of the profession to the State and to the Community, whether in general practice or in hospitals or in the departments of public health and preventive medicine, asked: "What has the State and what has the public done in return? I think, very little," he added, "and it appears to me that the public requires calling to its duties in this respect." The Fund gives money which has hitherto been mainly supplied by the profession itself; the Guild will give money's worth. For Fund and Guild alike increased support is needed, and in behalf of both we plead and fain would trust that the public will not fail to recognise its obligation to the medical profession by a liberal response to the appeal which we now make.

Subscriptions and donations for the Fund may be sent to the Treasurer of the Fund, 15, Wimpole-street; and for the Guild to the Secretary of the Guild, 100, Harley-street, by both of whom further information will gladly be supplied.

We are, Sir, yours faithfully,

For the Guild:
ADELINE M. BEDFORD,
KATHERINE WESTMINSTER,
E. BROADBENT,
MAY THORNE.

For the Fund:
R. DOUGLAS POWELL,
T. HENRY BUTLIN,
WILLIAM S. CHURCH,
THOMAS BARLOW,
JOHN TWEEDY,
SAMUEL WEST.

Dec. 24th, 1909.

X RAY ULCERS CURED BY HILTON'S METHOD.

To the Editor of THE LANCET.

SIR,—Dr. A. F. Savill's "Notes of a Case of X Ray Ulcers cured by Hilton's Method," appearing in THE LANCET of Dec. 18th, p. 1811, is of special interest from its uniqueness in regard to its neuropathology. I venture to draw her attention to a contribution made by me on this subject just over a year ago,[1] wherein I endeavoured to elucidate the series of histo-pathological changes resulting in the necrobiotic manifestations in the tissue of Mr. Hall-Edwards's amputated hand by microscopic examinations of resected portions of the remaining nerves. There was marked evidence of extensive denervation and degeneration of the neuro-axones by chromatolysis, as well as the presence of fibrotic tissue, which acted as an obstacle to the regenerative efforts of outgrowth from the more normal proximal ends of the remnant nerves. It is conceivable that section of these nerves at or above "the line of demarcation," as performed by Dr. Alfred Eddowes, led to the natural outgrowth of the dendrons in the required direction, and that the thiosinamin injections as well as the gauze packing facilitated regeneration by removing the obstacle, thus affording a path for their "cones of growth."

These phenomena are beautifully described in detail in his presidential address by Dr. F. W. Mott, "On the Present Position of the Neurone Doctrine."[2] In Dr. Savill's case the limitation of the sclerodermia to the left half of the body, and the presumable correspondence of the skin lesions to the distribution peripherally of certain spinal nerves, is

[1] Transactions of the Royal Society of Medicine, Nov. 13th, 1909.
[2] Ibid., Nov. 20th, 1908.

noteworthy. This case therefore presented the sequelæ of peripheral denervation *primarily from intrinsic causes, and secondarily from extrinsic molecular bombardment* over the same areas. It would also seem that the great tolerance of this patient to such frequent repetitions of the X rays ("almost daily for a period of two years"), done apparently without filtration, was in some measure due to the pre-existing intrinsic denervation in those peripheral areas. There would therefore be some essential difference in these X ray ulcers and those more commonly met with on otherwise normal skins where persistent hyperkeratosis predominates.

The recognised absence of dendrons and arborisations in granulation tissue, more so in redundant granulation tissue, and the persistence of exalted epicritic sensibility, particularly in those of X ray necrosis, opens up a promising field for investigation by neuropathologists. My experience with thiosinamin injections into the deltoid for "the brawny arm" in post-operative mammary cancer, which I look upon as a trophœdema, enables me to endorse the experience of Dr. Savill with this drug as a sclerolytic agent.

I am, Sir, yours faithfully,

H. D. MCCULLOCH.

New Cavendish-street, W., Dec. 20th, 1909.

AGAINST QUACKERY.

To the Editor of THE LANCET.

SIR,—It seems that the medical profession are at last rousing themselves to fight the quack remedy monger. A book has been published dealing with these medicines, a Royal Commission has been promised, and it really seems that something is going to be done, so long as the profession itself does not sink into a lethargic state again.

I should like to humbly offer, as one greatly interested in the question, a couple of suggestions. Firstly, as we are on the eve of a General Election a deputation of, say, four of the leading medical men in the various districts should wait on the candidates and request the promise of their support in the event of a Bill prohibiting the sale of quack medicines being brought forward. Secondly, as a Royal Commission has been promised, overwhelming evidence must be produced by the profession, because they must remember they will be fighting a big newspaper interest as well as the quack gentry; and I would suggest that in order to procure this evidence every practitioner who can, in the event of death or illness, trace the use of quack remedies by the patient, the use of which had aggravated the illness or accelerated death (Secret Remedies gives the ingredients of some of the nostrums, so reference to that would facilitate matters in these cases), should keep a note and forward it to THE LANCET, when evidence could be produced before the Commission that not only were quacks doing harm to the medical profession but were a source of great danger to the public.

I am, Sir, yours faithfully,

Dulwich, S.E., Dec. 29th, 1909. B. C. KEATES.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM: A REQUEST FOR STATISTICS.

To the Editor of THE LANCET.

SIR,—I am endeavouring to collect statistics which may throw some light on the vexed question of antisepsis *v.* asepsis in the prevention of ophthalmia in the newly born. The antiseptic method assumes the possibility of infection in every case and may be subdivided into germicidal, where an endeavour is made to kill the germ by strong germicides, such as silver nitrate and corrosive sublimate, and into mechanical, where trust is placed in the removal of the germ by mechanical flushing with feeble antiseptics, such as boracic lotion.

The aseptic method, on the other hand, aims at the thorough cleansing of the eyelids before they are opened, and the prevention of inoculation afterwards, nothing being put into the conjunctival sac unless there is definite reason to fear infection. There are many records of statistics of the antiseptic methods, but, as far as I am aware, the only statistics of the aseptic method are those quoted by Mr. Sydney Stephenson in his Middlemore prize essay of 1907. Moreover, the majority of statistics on the subject have been obtained from the lying-in hospitals, and there must be a great store of instructive information in the experiences of general practitioners (and of midwives) which has never been utilised.

May I ask any of your readers who are interested for (1) references to recent statistics; (2) personal experiences in the use of these different methods? I will be very grateful for any information sent to me at the subjoined address, and for facility of tabulation I beg to suggest that the following table should be used:—

Method employed.	Number of births.	Number of cases of inflammation within 4 days of birth.*		Number of cases of injured eyes.
		Severe.	Slight.	

* Details of the bacteriology and probable method of infection will be particularly valuable.

I am obtaining some statistics of this kind from friends in Liverpool, but I venture to ask the hospitality of your columns for this request in order that the scope of the inquiry may be enlarged.

I am, Sir, yours faithfully,

A. NIMMO WALKER.

45, Rodney-street, Liverpool, Dec. 22nd, 1909.

THE STANDARDISATION OF DISINFECTANTS.

To the Editor of THE LANCET.

SIR,—Referring to the report of your Commissioners on the Standardisation of Disinfectants and to their comments on various correspondence thereon, I should like to remind your readers of the fact that the appointment of this Commission arose out of the acrimonious criticism of certain trade rivals who took exception to the suggestion put forward by Dr. Rideal and the present writer in their attempt to standardise a certain indefinite condition imposed by many of the leading public health authorities in connexion with the Rideal-Walker guarantee called for in their tender forms.

In the first place, one wonders why THE LANCET should have felt called upon to appoint a Commission at all, seeing that all they could accomplish would be to traverse the work and the report of a previous Commission appointed in 1903 with a similar object. This Commission was composed of such independent experts as Dr. F. W. Andrewes (St. Bartholomew's Hospital), Professor Sheridan Delépine (Manchester), Mr. Walter Hills (Pharmaceutical Society), Professor E. Klein (St. Bartholomew's Hospital), the late Dr. Allan Macfadyen (Lister Institute), Dr. James Ritchie (Oxford), Professor C. Hunter Stewart (Edinburgh), Professor G. Sims Woodhead (Cambridge), Colonel R. H. Firth, R.A.M.C., Colonel J. Lane Notter, R.A.M.C., and Dr. Samuel Rideal. Their report, which was approved and adopted in 1906 by the Council of the Royal Sanitary Institute, under whose ægis the work was conducted, recommended the Rideal-Walker test "for general purposes on account of its simplicity of working."

It is interesting to note that the bacteriological part of THE LANCET inquiry was entrusted chiefly to Dr. Sims Woodhead, who reports that out of a series of 11 consecutive Rideal-Walker tests "it was possible to obtain definite coefficients in three instances only," and that, moreover "amongst the remaining eight experiments it was possible to obtain two very doubtful coefficients which might be read according to the bias of the observer," and further, that "the other six provided little information of any kind." It would also be interesting to know why Dr. Woodhead had such difficulty in 1909 in working a test he found so simple in 1906.

Dr. Rideal's criticism in your issue of the 18th so completely discredits the findings of the Commission that all fair-minded readers of your journal need no words from me in further defence of the Rideal-Walker test, which has been so universally adopted. I would, however, point out that the conclusions arrived at by your Commissioners both as to the value of the Rideal-Walker test and as to the results attained thereby differ materially from those published by well-known scientific investigators of at least equal authority.

As regards the compounds of my firm, I may state that it is quite true that at one time the coefficient 4 was guaranteed and published for Jeyes' Fluids, but for some time past it has been guaranteed at 5, and I should like to add that it is retained at only 5 in order to admit of adding certain other properties which fit Jeyes' Fluid for use as not only a reliable bactericide, but also an insecticide, a deodorant, and a non-toxic general cleanser, making it, we claim, the best and safest all-round disinfectant for household use. The coefficients of our various products are guaranteed to range from 5 to 22, according to the purpose for which they are required. For example, where a strong bactericide only is wanted—as in public health work, &c.—we offer our Special Fluid Cyllin; and where the only water available for purposes of dilution is very hard, salt, or brackish we recommend crude Cyllin. In this connexion the following independent results obtained from samples of Jeyes' Fluids bought in the open market have recently been published:—

	No. 1.	No. 2.	Date of test.
Professor Klein ...	5·0 ...	4·4 ...	July 29th.
Professor Hewlett ...	4·0 ...	4·2 ...	August 12th.
Dr. Rideal ...	5·4 ...	5·0 ...	July 26th.

Professor Hewlett's figures as well as that for No. 2 obtained by Professor Klein, are slightly lower than the present standard for both fluids—viz., 5·0—and are doubtless due to the fact that in these cases they were working with specimens drawn from older stocks, at the time of manufacture of which the guaranteed coefficient was only 4·0.

My company is prepared to stand by any guarantee issued over its signature, and I, as their scientific adviser, am prepared to demonstrate the validity of those guarantees to anyone sufficiently interested, including the members of your Commission.

THE LANCET claims to have an unbiassed mind and to be desirous of avoiding acrimony, and yet even the casual reader must see that in the Commissioners' report, as also in their replies to criticisms on that report, the products of my company are specially singled out for direct attack.

If there is any one firm in the industry in question to whom credit is due for an honest attempt to produce a method of scientifically standardising disinfectants for the benefit of those interested in the health of the community, and by which the individual consumer may obtain a known disinfecting value, that firm is the one with whom I have the honour to be connected.

I am, Sir, yours faithfully,
For Jeyes' Sanitary Compounds, Co., Limited,
J. T. AINSLIE WALKER, Managing Director.

64, Cannon-street, E.C., Dec. 24th, 1909.

*** Our Commission had not the origin which Mr. Ainslie Walker states. He need not wonder at all at its reason: it followed on the fact that the previous Commission to which he alludes had not settled matters. The report of that Commission was not adopted according to its chairman, Mr. Wynter Blyth, who wrote to that effect to us (see THE LANCET, Dec. 26th, 1908, p. 1942). With regard to whether our Commission is correct or Dr. Rideal we are satisfied with our findings. The accusation of personal bias is unwarranted.—ED. L.

CIVILISATION AND THE CORSET.

To the Editor of THE LANCET.

SIR,—Mr. Heather Bigg's arguments in favour of the modern corset are rather far-fetched. There can be no possible support to the extra (the generative) female organs. The fact that pressure—it need be by no means excessive—is exerted upon the abdomen, and particularly, as is the case with corsets, at the waist line, must cause a corresponding amount of pressure upwards towards the diaphragm, &c., and specially downwards upon the organs in the pelvic cavity.

Two reasons why corsets cause the abdominal organs to gravitate towards the lower abdomen and pelvic cavity are (1) constriction at the waist; (2) by withdrawing the necessity for the abdominal muscles to exert their normal supportive force, and thereby weakening them from lack of use, they consequently "give" in the part least protected artificially and of least resistance—viz., the lower abdominal region.

It is not correct to say that Nature ordained that woman should breathe pectorally. She does so not because Nature ordains it but because her corset makes it impossible for her to do otherwise. If Nature ordained that she should breathe pectorally then Nature is not consistent, since the civilised woman must have been made from a pattern quite different to that upon which her uncivilised sister was made. The latter breathes both pectorally and abdominally—i.e., naturally—as do both civilised and uncivilised men. It is also remarkable how little need there appears to be among native women for abdominal support. They scorn corsets, and very seldom is there a case of uterine prolapse or undue protrusion of the lower abdominal wall even after having borne many children.

With regard to men wearing corsets, I think Mr. Heather Bigg must mean abdominal belts, very different articles indeed. I have travelled in a good many parts of the world, both tropical and temperate, and have never seen a man wearing a corset, as a corset and not an abdominal belt, for support. Of course, we have all seen men who wear corsets, but they are worn for the sake of the figure only. I suppose every medical man has at some time ordered an abdominal belt for some patient or other, but I do not think many, if any, of us have ordered men to wear corsets. I do not, however, wish to underrate the importance of the corset to the modern woman. From long use it has become a necessity, and after once getting accustomed to it she cannot well do without it, especially when we take her mode of dress into consideration. It is, however, a strange thing (and quite contrary to Mr. Heather Bigg's argument) that the stouter the woman the less does she desire to wear corsets. A thin woman will never go without them; a stout woman prefers to discard them, and especially is this the case in hot weather, notwithstanding Mr. Heather Bigg's assertion to the contrary.

There is one point which I should like to mention with regard to the corset of the present day. I have lately had quite a number of cases of pain and tenderness in the breast, accompanied, or preceded by, more or less inflammation of the nipple, which the usual remedies failed to cure. I found in every case that the cause of the trouble was an irritation of the nipple by the upper edge of the corset, which just reached to or a little below the nipple, which was thus constantly exposed to friction or squeezing. To make matters worse there was in every case either a whalebone or steel support just in the nipple line. I ordered that the corsets should be altered so as to give ample room to receive and support the breast and to reach well above the nipple. The trouble rapidly disappeared without further treatment. Unless this detail in the manufacture of the corset is corrected I fear it will give rise to considerable trouble to many women in the near future.—I am, Sir, yours faithfully,

Leigham Court-road, S.W., Dec. 9th, 1909. JAMES KIRKLAND.

AN OVERSIGHT.

To the Editor of THE LANCET.

SIR,—In the Section of Dental Surgery comprised in your admirable Annus Medicus published in your last issue there is an error which occurs three times, which I am sure you would wish to have rectified. Three papers, by Dr. Theodore Shennan, Mr. A. C. Lockett, and Mr. D. M. Shaw respectively, are mentioned as having appeared in Dental Proceedings of July, June, and May, 1909. There is no such publication—to my knowledge—as Dental Proceedings. These papers appeared in the July, June, and May issues of the *Dental Record*. Trusting you will be good enough to make this correction,

I am, Sir, yours faithfully,
Dec. 26th, 1909. WM. RUSHTON, Editor, *Dental Record*.

*** We regret the slip.—ED. L.

A WARNING.

To the Editor of THE LANCET.

SIR,—A young man claiming to be my relative has recently called on several medical practitioners in the London suburbs. He inquires for lodgings in the neighbourhood and then borrows money from the landlady to whom he has

been introduced by the doctor. I write in the hope that this warning may be the means of securing his arrest.

I am, Sir, yours faithfully,

Queen Anne-street, W., Dec. 23rd, 1909. HUGH M. RIGBY.

THE POSITION OF DERMATOLOGY IN MEDICAL EDUCATION.

To the Editor of THE LANCET.

SIR,—In the series of articles recently published in your columns on medical education there is allusion over and over again to the admitted repletion of the curriculum. I hesitate therefore to point out that the curriculum requires strengthening in one direction, but I believe that to be the case. Dermatology is neglected.

I am, Sir, yours faithfully,

Dec. 28th, 1909. M.D., F.R.C.S.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Greater Birmingham.

Major C. E. Norton, C.E., the inspector appointed by the Local Government Board, is inquiring into the application of the Birmingham city council for an enlargement of the municipal area. The proposal of the city council is that the districts of Aston Manor, Handsworth, Erdington, Yardley, and the greater part of King's Norton should be included within the city. Important evidence was given by Dr. J. Robertson, medical officer of health of Birmingham. He said that there was in quite remarkable degree an overflow of population from the city beyond its borders. He knew of no provincial town where this had gone on so pronouncedly. As medical officer of health for the city he was pleased to see the population "spreading" out of the crowded parts of the city. He had advocated "spreading" consistently for a great number of years. From the erection of business premises, works, railways, &c., land was being absorbed in the city which was formerly occupied by dwelling-houses. There were still large areas too thickly populated for his liking. The extension of the city had been going on for a considerable time. He was able to trace the start of the migration into Aston over half a century ago. Rather later than that period it commenced on the south. On the west the extension was much later owing to the absence of travelling facilities, and the same applied to the east. The growth was extending chiefly along the lines where traffic was being greatly facilitated by railways or tramways. In King's Norton, Erdington, and Yardley there had been abnormal increases of the population during recent years and these they could not hope to keep up. These increases were partly due to what was called the normal increase of population, the excess of births over deaths, but far more to the migration from Birmingham into them. Dr. Robertson considered it desirable from the public health point of view that the whole area should be under one administration. At present there were six medical officers of health dealing with the district, and necessarily there was a lack of uniformity, and this defect made itself apparent in the methods for providing against small-pox, diphtheria, typhoid fever, and other diseases. In Birmingham, again, special precautions were taken against tuberculosis, but the campaign was not so vigorous in the outside areas. Uniformity was also desirable in regard to meat inspection, for while the butchers in the city were rigidly dealt with, only one of the outside districts affected by the scheme had a competent meat inspector. The administration of the Sale of Food and Drugs Act would also benefit by being placed under one control.

Hospital Sunday Fund.

At a meeting under the presidency of the Lord Mayor a financial statement was presented, when the sum distributed was as follows:—General Hospital, £1356 13*s.* 10*d.*; Queen's Hospital, £1294 4*s.* 9*d.*; General Dispensary, £181 8*s.* 2*d.*; Children's Hospital, £175 0*s.* 9*d.*; Eye Hospital, £227 8*s.* 8*d.*; Women's Hospital, £138 5*s.* 2*d.*; Deaf and Dumb Institution, £129 19*s.* 8*d.*; Blind Institution, £143 10*s.* 8*d.*; Orthopædic and Spinal Hospital, £145 3*s.* 8*d.*; Birmingham Sanatorium, £129 8*s.* 8*d.*; Homœopathic Hospital, £145 10*s.* 8*d.*; Lying-in Charity, £139 14*s.* 4*d.*; Skin and Urinary Hospital, £106 4*s.* 10*d.*; Ear and Throat Hospital, £59 1*s.* 10*d.*; Dental Hospital, £14 2*s.* 10*d.*; District Nursing Society, £90 12*s.* 3*d.*; Moseley Convalescent Home, £80 0*s.* 4*d.*; Jaffray Hospital, £26 5*s.* It was stated that the City Aid Society had at the request of the committee of the Hospital Sunday Fund undertaken to receive any tickets which might be sent them, and to see they were distributed amongst those who had need of them and were proper subjects for hospital treatment. The recommendations had been accepted by the General Hospital, the Dental Hospital, and the Orthopædic Hospital. The suggestion was scarcely applicable to the Moseley Convalescent Home or to the Birmingham and Midland Counties Sanatorium. The committee was still in negotiation with the General Dispensary, whilst the Eye, Ear, and Throat and Homœopathic Hospitals desired to watch the operation of those suggestions, where adopted, before coming to a final decision.

Dec. 28th, 1909.

WALES.

(FROM OUR OWN CORRESPONDENT.)

A New Cottage Hospital in the Rhymney Valley.

AN observant visitor to the colliery districts of Monmouthshire and Glamorgan would be struck with the scant provision which has been made for the medical and surgical treatment of the inhabitants in institutions. This is all the more striking when the nature of the industry is considered, involving, as it does, a more than usual liability to accidents. There are, broadly speaking, three large hospitals available for the workmen in the coalfields of the two counties—those at Merthyr Tydvil, Cardiff, and Newport—and in a few districts there are smaller cottage hospitals with 15 or 20 beds in each. These, as a rule, have been erected with funds supplied jointly by the colliery owners and the workpeople and are supported from the same source. Some three years ago a scheme on somewhat novel lines was suggested for the erection and maintenance of a small hospital at Aberbargoed, a district situated about the middle of the Rhymney Valley. It was proposed to build a hospital and a hotel upon sites which had been given for the purpose, and the profits derived from the hotel were to assist in maintaining the hospital. The scheme was opposed by the police and by the county magistrates and was eventually abandoned. The need for the hospital was felt to be so great that last year an offer was made by the Powell Duffryn Colliery Company to erect suitable buildings provided the workmen would subscribe for the future maintenance. This offer was accepted, and on Dec. 10th last Lord Tredegar opened the institution which the company has built at a cost of some £6000. There is accommodation in it for 14 patients in four wards, each of which is on the ground floor. In addition, there are a receiving room, an operating room, and an X ray room. Bedrooms are provided for six nurses. The entire building is heated by hot water and lighted with electric light. The workmen's fund has already reached nearly £600, and with the simple method of levying contributions from the colliers which is practised in the district there should be no difficulty in carrying on the institution upon the most modern lines.

County Medical Officer for Pembrokeshire.

Although the Local Government Act, 1888, empowered county councils to appoint a medical officer of health, only one of the 12 county councils in Wales—that of Glamorgan—took advantage of that power to appoint a whole-time officer. The Housing, Town Planning, &c., Act, which received the Royal Assent on Dec. 3rd last, makes such an appointment obligatory on the part of county councils, and the Pembrokeshire council on Dec. 18th last elected as its first medical officer Dr. Thomas Evans, who for more than a year has been one of the medical inspectors of schools in the county of Glamorgan. The salary attached to the appointment is £400 per annum, with n additional £50 for travelling expenses.

Pulmonary Tuberculosis in Swansea.

Although in common with other parts of the country the death-rate from consumption in Swansea is very considerably lower than it was 50 years ago, it is still higher than the rest of England and Wales. In 1908 there were 179 deaths in the borough from the disease, a number equal to 1·66 per 1000 of the population. Disinfection is offered after every

death and where cases are known to exist, and it appears to be taken advantage of in an increasing number of instances. The board of guardians of the union has recently approached the Swansea corporation and the Swansea rural district council with a view to some steps being taken by these sanitary authorities to lessen the incidence of the disease. As one result it is suggested that a small sanatorium should be established on the hillside overlooking the bay and near to the convalescent home which was built a few years ago in connexion with the General Hospital.

Measles in Monmouthshire.

The epidemic of measles which has been prevalent in certain parts of the Bedwellty urban district in the Rhymney Valley is now showing signs of abatement. It began in the early part of November, and in the Aberbargoed district alone has caused 14 deaths. Several of the public elementary schools have been closed since the beginning of November, but in the opinion of the medical officer of health, Mr. H. T. Evans, this closing has had little if any effect in diminishing the spread of the disease. He points out that the opportunities of infecting others are as great outside a school as inside in a district like Aberbargoed with its long densely-populated streets, overcrowding of houses on areas and of people in houses. Attention has been drawn to the district upon more than one occasion by reports of the medical inspectors of the Local Government Board, but it appears to be difficult to arouse the sanitary authority to any feeling of responsibility for a continuance of the insanitary state of its district.

Damages against a Chemist.

In an action heard in the Newport county court a druggist of that town has been ordered to pay damages to the extent of £10 to a man whose injured finger he treated for some time. The injury became septic, and the man, being unable to work, ultimately lost his employment.

Barry Rate-aided Hospital.

The town of Barry is equipped with nearly every municipal undertaking it is possible to have. It has public slaughter-houses, small-pox and fever hospitals, and possesses one of the few refuse destructors to be found in South Wales. For many years past an adapted dwelling-house has been used as an accident hospital and has been supported out of the rates of the town, the necessary surgical attendance being freely given by some of the medical practitioners resident in the district. The original building has now been replaced by one specially built for an accident hospital, and it has been arranged that all the practitioners in the town shall be on the surgical staff, serving for periods of three months. Although at present Barry is the only town in which there is a rate-aided hospital, it is probable that they will be established elsewhere in the future, with some principle of payment for members of the staff.

Cardiff City Mental Hospital.

At a meeting of the visiting committee of this institution on Dec. 23rd a report by the medical superintendent, Dr. E. Goodall, recommending that a physiological chemist be appointed, was considered. Dr. Goodall has been very persistent in his advocacy of the appointment and has urged upon the committee the importance of undertaking physiological research work. The report dealt with the scantiness of our knowledge of the bio-chemical processes in insanity and the pressing need for research in this direction. The recommendation was adopted, and it was resolved that the appointment should be advertised at a salary of £200 per annum, with board and lodging.

Dec. 28th, 1909.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Parliamentary Representation of Edinburgh and St. Andrews Universities.

AT a meeting of graduates held last week in Edinburgh, Emeritus Professor Sir Alexander R. Simpson, M.D., D.Sc., LL.D., was unanimously adopted as candidate. Graduates interested in Sir A. R. Simpson's candidature and willing to join his committee should communicate with his election agent, Mr. T. S. Whyte Smith, W.S., 45, Queen-street, Edinburgh.

The Royal Faculty of Physicians and Surgeons of Glasgow.

The King has graciously signified his pleasure that the Faculty of Physicians and Surgeons of Glasgow shall henceforth be known as the Royal Faculty of Physicians and Surgeons of Glasgow. The Faculty has granted its Licentiates the privilege of wearing a gown at public functions. A printed description of the costume can be obtained from Mr. Alexander Duncan, Registrar, Faculty Hall, Vincent-street, Glasgow.

Glasgow and West of Scotland Coöperation of Trained Nurses.

In the report by the executive committee of this association, which was submitted at the annual general meeting recently, it was stated that the confidence of the medical profession and the public has steadily grown, so that the nurses have always been well employed. There were 178 nurses on the roll on Oct. 1st, 1908; 16 new nurses were elected during the year, 12 had resigned, and 1 had died, leaving 181 on the roll on Sept. 30th, 1909. Since that date 5 had resigned and 8 had been elected, making the present number 184. The number of cases attended was 1904, and the amount earned by the nurses was £11,836. Since the establishment of the Coöperation in 1894 the number of cases nursed is 20,063, and the amount earned by the nurses is £119,875. The accounts of the Coöperation for the year ending Sept. 30th, 1909, show an income of £1465 and an expenditure of £1289, leaving a surplus of £176. The assets (including those of the sick fund) amount to £7353, and after providing for outstanding accounts there remains a surplus of £7060.

Presentation to Dr. James Whiteford of Greenock.

Dr. James Whiteford of Greenock, who has just completed 50 years as a medical practitioner, was recently entertained by a numerous company of his patients and friends in the Watt Museum Hall, Greenock. Sir Hugh Shaw-Stewart presided, and in the course of the evening presented Dr. Whiteford with an address containing 300 signatures and a cheque for £930. The address dealt in eulogistic terms with Dr. Whiteford's career, and went on to congratulate him that at the end of a long period of faithful and devoted service he still retained a large measure of his accustomed vigour, and that his personal interest in the welfare of his patients and in the advancement of medical science, which had characterised his whole life, remained unabated. It may be recalled that a short time ago Dr. Whiteford was presented by the local medical men with a cheque for £100 and a solid silver salver.

Elgin School Board and Medical Inspection.

Elgin school board decided recently not to put in force the system of the medical inspection of school children. The board has now received a letter from the Education Department to the effect that unless the board reconsidered its attitude on the matter the department would invoke the compulsory powers conferred on it. The board, however, has replied that it adheres to its previous finding, and that if a scheme of medical inspection should be enforced the onus must lie with the department.

Cromdale Inspector of Poor and the Medical Officer.

The Local Government Board has now communicated to Cromdale parish council and to Dr. A. Hutchison the result of its inquiry into the charge brought by the latter against the inspector of poor, which alleged that the inspector had refused shelter to a pauper although she was blind and destitute. Dr. Hutchison asked the parish council for an inquiry "both on account of the treatment meted out to this pauper, and owing to my position as medical officer being untenable by the conduct of the inspector towards me." The Local Government Board states that it has severely censured the inspector of poor for his treatment of a blind and helpless person, notwithstanding the repeated remonstrances of the medical officer. The Board commended Dr. Hutchison's personal action in the case, he having performed a necessary public duty in bringing the inspector's conduct to the parish council's notice.

Deeside District Committee and the Notification of Phthisis.

At a meeting of the Deeside district committee held on Dec. 23rd, 1909, it was unanimously agreed that the Notification of Diseases (Infectious) Act, 1889, should be extended to include pulmonary phthisis on the list of notifiable diseases under the said Act.

Gift of £10,000 to Dundee Royal Infirmary.

Mr. J. K. Caird, manufacturer, Dundee, has offered the sum of £10,000 to the directors of Dundee Royal Infirmary to enable them, if they so desire, to take over the Sidlaw Sanatorium for the treatment of citizens suffering from tuberculous ailments. Mr. Caird is a liberal giver to Dundee charities. The following are his chief contributions in this direction: Cancer Hospital, £24,000; Maternity Hospital, £6000; sanatorium, £10,000; donation (1885), £1540; donation (1900), £1000; out-patient department, £2400. In addition to these there falls to be added the Caird Nurses' Home which represents several thousands of pounds. A meeting of Dundee Infirmary directors was held on Dec. 21st, 1909, when Mr. Caird's letter was read. In making the offer Mr. Caird had in his mind the claims of women and children, especially children. He has no desire that his gift should be added to the endowment, but rather intends it to enable the institution to be carried on for some years. One of the conditions of the offer is that the sanatorium should be handed over free of debt and that the endowments should go along with it. Were the directors able to take the sanatorium over on those conditions he would hand over £10,000 in such a way as to provide a revenue of £1000 a year for ten years. The directors agreed that Mr. Caird's offer was most generous, but in order that the financial position might be more fully realised, particularly as regards endowment, a committee was appointed to confer with the sanatorium executive.

Dec. 28th, 1909.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Daniel John Cunningham Memorial.

A MEETING of the executive committee entrusted with the arrangements for the proposed memorial was held in the Medical School of Trinity College on Dec. 20th, 1909, and presided over by Dr. James Little, the Regius professor of physic. It was decided to accept the estimate of Mr. Oliver Sheppard and to ask him to prepare designs for the portrait medal and bronze panel. Mr. Sheppard is a former pupil of the late Professor Cunningham and his work is already well known in the School of Physic, as it was he who designed and executed the beautiful Bennett and Banks memorials. Letters were read from some members of the University of Edinburgh, and the committee expressed its strong approval of the suggestion that similar Cunningham medals should be established in the Universities of Edinburgh and Dublin, and that identical portrait panels should be placed in the medical schools of these two universities. It was recognised that such a joint scheme would tend to perpetuate the close association into which the life and work of Cunningham had brought the medical schools of Edinburgh and Dublin. The secretaries were instructed to write to the Edinburgh committee giving the views of the Dublin committee and to express the hope that a joint scheme meeting the wishes of both universities would be approved.

Artisans' Dwellings and Open Spaces.

After discussion the report of the corporation improvements committee which dealt with the Cook-street area has been adopted by the municipality. A period of fully two and a half years has now elapsed since that district was officially reported to be in an insanitary condition and amenable to improvement by the erection of artisans' dwellings. The scheme which has now been proposed includes the clearing away of houses which are at present lodging 83 families, and the building of 162 new houses, of which 117 will be two-roomed and 45 one-roomed. Each of these houses is to accommodate one family. The two-roomed dwellings are to be let to tenants at a weekly rent of 3*s.* 6*d.* and the one-roomed at 2*s.* It is satisfactory to know that there is a prospect that when a portion of the clearance has been carried out it will be possible to leave the space free from buildings. In the present pervading atmosphere of "town-planning" the desirability of securing open spaces of this kind should surely be recognised. They serve as lungs to the whole city, as playgrounds for the children, as reflecting mirrors of sunlight and cheerfulness to the neighbouring tenant and the casual wayfarer. It has been recommended in the lay press, and every sanitary expert must surely agree with the suggestion, that "the foundation of any future scheme of 'town-planning' in regard to Dublin will be immensely stimulated and facilitated by making an effort now in all improvement schemes to secure as much open space as is financially possible. ..... It is only simple good sense to save land from the builder, where the means exist, before the effect of minor improvements has enhanced its selling value to a prohibitive degree."

Workhouse Chalet v. *Consumptive Sanatorium.*

Instructive indications of the present rate of progress of the antituberculosis crusade in different areas of the country have been furnished even in the closing weeks of the old year. The construction of sanatoriums for consumptive patients is, generally speaking, sure to receive very active opposition from the members of the governing bodies in the southern portion of this country, and there appears to have developed a widespread wave of opinion in favour of the suggestion that shelters or annexes to the existing hospitals or unoccupied workhouse wards could be made to serve the requisite purposes of the situation as efficiently as newly constructed sanatoriums, while much more convenient and less expensive. This idea has just been carried out by the Carlow board of guardians, who after the business of the last weekly meeting adjourned to the grounds of the institution for the purpose of opening the consumptive chalet which had just been completed so as to be ready for the reception of patients. The chalet is not to be used for the reception of chronic cases, but for those patients only who are in the initial stages of tuberculosis. It is a wooden structure of substantial strength, one storey high, and adapted in every way to the requirements of the most modern and successful modes of treatment of the disease. The function was presided over by the chairman of the Carlow urban council, who informed his audience that the chalet had received the approval of the medical inspector of the Local Government Board and of the medical officer of the union.

Armagh Asylum.

Sir G. P. O'Farrell, inspector of lunatics, has reported to the committee of management of the Armagh Lunatic Asylum that they should without delay take into consideration the question of providing additional accommodation. He says the laundry has become too small for the size of the institution and should be enlarged. The bedclothing was scarcely heavy enough for the winter unless the dormitories were well heated, and no steps had been taken to provide an alternative exit in case of fire. Provision for observation dormitories for the continuous supervision of suicidal and epileptic patients was also still in abeyance. This report has been referred to the visiting committee.

Unhealthy Belfast Areas.

The new scheme for getting rid of unhealthy areas in Belfast was brought before the city council last month and was unanimously approved of. The estimated cost is a little over £116,000, less about £66,000 estimated value of building ground and capitalised ground rents and other rents to be received therefrom.

The Late Hon. Archibald Gordon.

At a meeting of the Belfast Division of the British Medical Association held on Dec. 16th last (Dr. C. Kevin presiding), on the motion of Sir John Byers, seconded by Dr. John Campbell, the following resolution was passed unanimously:—

That the members of the Belfast Division of the British Medical Association desire to express their sincere sympathy with their Excellencies the Lord Lieutenant of Ireland and the Countess of Aberdeen (who are both honorary members of the British Medical Association) in the irreparable bereavement they have sustained by the sad death of their youngest son, the Honourable Archibald Gordon, who, although still young, had already given ample promise of a brilliant career.

The honorary secretary, Dr. J. C. Rankin, was instructed to forward a copy of the resolution to their Excellencies. The corporation of the city of Belfast also passed a similar vote of sympathy on the motion of the Lord Mayor, seconded by the High Sheriff.

Dec. 28th, 1909.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Creation of a Health Department at the Ministry of Marine.

THE creation of a health department at the Ministry of Marine has recently received the necessary ministerial sanction and will be undertaken as soon as funds are voted by Parliament. The new department will possess considerable administrative powers and will be on somewhat the same lines as the analogous department already existing at the Ministry of War.

School Sanatoriums.

On the proposal of M. Lemarchand, the municipal council of Paris has directed that a commission of the council shall take into consideration the question of providing school sanatoriums for the poorer class of children attending the communal schools of the city. The object of the scheme is to obtain for the children the benefits of fresh air and hygienic surroundings without interrupting their education.

New Local Abortive Treatment of Syphilis.

In the treatment of syphilis M. Hallopeau and M. Brodier have been making comparative estimates of five remedies administered by injection under the prepuce. The substances were atoxyl, arsacetine, hectine, bibromide of mercury, and a mixture known under the name of arqueritol. M. Hallopeau and M. Brodier found that atoxyl and arsacetine were well tolerated in daily doses of 0·10 and 0·20 centigrammes, but they only used these two preparations exceptionally, because it was known that a few injections of even very small quantities might cause serious injury to the patient's sight. Hectine in daily doses of 0·10 and 0·20 centigrammes gave the best results, and with it they succeeded in aborting almost all the cases of syphilis which they had the opportunity of observing in the stage of chancre. Bibromide of mercury was well tolerated in the gluteal region, but when injected under the prepuce it gave rise to an induration extending throughout almost the whole length of the part; this induration, which had a somewhat cylindrical form, was painful and lasted for several weeks. An effect similar to that of the bibromide of mercury was produced by the mixture known as arqueritol, even when given in doses of only two centigrammes. The general conclusion was that hectine was the most useful of the substances which have been proposed for the abortive treatment of syphilis.

Conditions Simulating Abdominal Cancer.

A case which was supposed to be one of intestinal cancer but which proved to be in reality an inflammatory thickening of the colon, successfully treated by rest, was mentioned by M. Le Dentu at a meeting of the Academy of Medicine. He said that cases of perigastritis, cholecystitis, sigmoiditis, and perisigmoiditis were not infrequently mistaken for cancerous tumours. In the present instance the diagnosis was exceptionally difficult because the lesion was situated in the transverse colon. The diminution of the local enlargement under the influence of rest and medical treatment was generally sufficient to clear up the uncertainty, but he considered that there were cases in which an exploratory operation was necessary for making a diagnosis, especially when there were concomitant symptoms of intestinal obstruction.

The Medical Man in Modern Society.

Professor Debove, formerly dean of the Paris Faculty of Medicine, recently delivered an address at the Collège Libre des Sciences Sociales on the position of the medical man in modern society. He showed to a good audience how medicine, which had originally to a great extent been identified with religious rites, had become a distinct science having intimate relations with other important branches of knowledge. Neither morality nor history, nor ethnography nor psychology could ignore medicine, and hygiene was a prominent feature in social science. These things are well known to all medical men; the important thing is that the public is becoming aware of them.

Death after Recovery from Chloroform Anæsthesia.

The pathology of the lesions which sometimes cause death at a late stage after the administration of chloroform has been studied by M. Aubertin, who has succeeded in reproducing the conditions experimentally. At a recent meeting of the Biological Society he said that after being kept under the influence of chloroform for one or two hours white rats and white mice died in the proportion of 7 to 10 at the end of a period varying from two to four days. No symptoms of jaundice were observed. At the necropsy hæmorrhages in all parts of the body were found. The liver was the organ principally affected; the kidneys, the lungs, and the muscular substance of the heart also exhibited changes but in a less degree.

Dec. 27th, 1909.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Milk Diet in the Treatment of Obesity.

THE reduction of obesity by a diet consisting exclusively of milk, as suggested by Professor Moritz, has been criticised by Dr. Hedinger in a recent article published in the *Archiv für Klinische Medicin*. Dr. Hedinger said that a satisfactory anti-fat diet must appease hunger while at the same time supplying a minimum of fat-forming material. He accordingly made careful observations of the metabolism in a number of patients. Some of them were found to have so strong an aversion to a diet consisting solely of milk that the treatment had to be discontinued after a few days. In every instance a well-marked decrease of weight occurred within the first few days, which could only be explained by the withdrawal of water from the body in consequence of the diuretic and diaphoretic action of the milk. After a few days, however, the loss of weight proceeded at a diminishing rate, and might even be counterbalanced by retention of water. The patient's weight was therefore not in accordance with the loss of fat. All the patients lost a great quantity of albuminoid material during the treatment, the nitrogen determinations showing a reduction which varied between 80 and 235 grammes of muscular substance. Dr. Hedinger tried to counterbalance the loss of albuminoid material by adding nutrose and eggs but without success. The deficiency of albumin in an exclusive milk diet has thus been actually proved. Under the potato treatment, on the other hand, the amount of assimilated nitrogen was increased. A dietary consisting exclusively of milk was therefore unsuited for continuous use as a means of reducing obesity, but it might be taken with advantage on one or two days each week.

Neutralon.

At a recent meeting of the Verein für Innere Medicin Dr. Ehrmann gave some account of a new compound termed neutralon, which has proved useful in diseases of the stomach. It is a silicate of aluminium which dissolves in hydrochloric acid with the formation of chloride of aluminium and free silicic acid; it adheres strongly to the walls of the stomach, does not irritate the intestines, and has no toxic action. Professor Rosenheim, discussing the practical value of the compound, said that it has been found useful in hyperacidity, in nervous irritation of the stomach, and in ulceration. A teaspoonful of it was taken in water three times a day, either before or after meals. Dr. Alexander, writing to the *Berliner Klinische Wochenschrift*, stated that benefit had been obtained in 12 out of 18 cases of gastric ulcer, in which he had given it; the results were especially good in cases of hæmorrhagic ulcer, because the silicate by sticking to the bleeding spot acted as a hæmostatic; in cases without hæmorrhage the effect was not so remarkable. In 42 out of 54 cases of hyperchlorhydria a striking amelioration occurred within a few days; the pains and nausea disappeared; diarrhœa, if there was any, passed off; and the amount of free hydrochloric acid diminished. Among 23 cases of hypersecretion 4 showed no change, but in the remainder the state of the patients was improved. Neutralon was therefore nearly as efficacious as bismuth and nitrate of silver, but had the advantages of being neither toxic nor constipating. In the treatment of hyperacidity its action was not so prompt as that of salts of potassium or magnesium, but it was of longer duration.

The Use of Moro's Tuberculin Ointment in Diagnosis.

Dr. Weil, writing in the *Münchener Medicinische Wochenschrift*, recommends Moro's tuberculin ointment as a reliable test for tuberculosis. This ointment, which was of 50 per

cent. strength, was applied to the skin of the upper arm or the abdomen, the effect being that in cases of tuberculosis a papular or pustular exanthem developed in from 12 to 36 hours, disappearing again after a few days. The method was applied in 65 cases of suspected tuberculosis, and in 15 the reaction proved positive, confirming the results of the physical examination of the patient. By the Moro test cases of apparently harmless bronchitis and anæmia could be diagnosed as tuberculous, the examination of the sputum showing tubercle bacilli at a later stage. On the other hand, in a case where tuberculous pleuritis was suspected, but the reaction with the ointment was negative, a malignant growth of the pleura was afterwards recognised. The ointment test is preferable to the Pirquet method and the ophthalmo-reaction, Dr. Weil says, being of easy application and free from danger without being less reliable.

Dec. 27th, 1909.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Typhoid Fever in Hungary.

THE outbreak of typhoid fever, which has already caused many deaths, is still on the increase, although the authorities are doing their best to check its spread. Isolation hospitals are being hastily built even in villages having a population not exceeding 4000 persons. Cases are isolated by force, if necessary, and yet the disease continues to spread in an uncontrollable manner. As an example of its prevalence, I may mention that in Nagyvarad, a city of 60,000 inhabitants, 395 cases of typhoid fever have been notified since August 1st, and it may be assumed that at least a hundred cases escaped notification. Up to Dec. 1st there were 51 deaths due to typhoid fever in Nagyvarad, which has an excellent water-supply and sewerage system. It may therefore be imagined how much greater must be the morbidity and the ravages of the disease in smaller towns and villages. In the Elesd district, for instance, there is scarcely one house without at least one case of typhoid fever or dysentery. Two officials, designated sanitary superintendents, who were sent by the Minister of Public Health to visit every village and to find out the cause of the epidemics, have come to the conclusion that the spread of the disease was due to the indescribable misery of the people. In consequence of this state of affairs the superintendents, without waiting for the instructions of the Minister, made arrangements on their own responsibility: they caused the houses to be whitened afresh; they filled up all the old wells; they divided the houses into certain groups, and for every group new wells have been bored; they erected temporary dwellings, and did what they could to improve the food-supply of the people by establishing kitchens where soup, meat, and vegetables were distributed daily. These arrangements—made also in other parts of the country—have cost up to the present time about 1,000,000 kronen (£40,000). At Budafok, a village near Budapest, one case of exanthematous fever has been notified. The source of the infection could not be traced because the patient, who was a commercial traveller, has travelled within the last month in Switzerland, Italy, and Germany. The authorities have taken all needful precautions to isolate him, and 16 days have now elapsed without the occurrence of a second case. The isolation of cases of typhoid fever has been very difficult until this epidemic, because the Contagious Diseases Act has not hitherto empowered the authorities to use force if necessary for the removal of patients to the isolation hospitals. Now, however, on account of the great dimensions which the epidemic has assumed, the various boards of health are invested with powers of compulsory removal.

Radium and Other Radio-active Substances.

The Ministry of Public Works in Austria has recently been considering the question of the sale of radium to the public by the State and has fixed the price at which it is to be sold. Professor Francis Esner has found that 1 gramme of pure radium can be extracted from the crude material supplied from Joachimsthal, and this will be sold out in portions of 1 milligramme which will cost 380 kronen (£16). The State will therefore receive 380,000 kronen (£16,000) for the lot. Intending purchasers, including a great many hospitals and sanatoriums, have already come forward, and in supplying them applications from the Austrian dominions will have priority over those sent from abroad. In Joachimsthal further quantities of radium have been found, and chemical work has resulted in the discovery of additional radio-active elements.

Conferment of a Medical Degree on Count Apponyi.

The *Official Journal* announces that His Majesty King Francis Joseph has graciously consented to the Budapest University of Sciences conferring on Count Albert Apponyi, the present Minister of Public Instruction, the degree of a honorary Doctor of Medicine. This academic distinction is given in recognition of his services in connexion with the Sixteenth International Congress of Medicine held this year at Budapest. It may be remembered that Count Apponyi was in London at the Inter-Parliamentary Conference.

Medical Students at the University of Budapest.

According to the recently published calendar of the University of Budapest, the number of medical students has increased to 1688, of whom 60 were females. The medical faculty of this University is one of the best attended in Europe, being exceeded in point of numbers only by Paris and Munich.

Dec. 27th, 1909.

CONSTANTINOPLE.

(FROM OUR OWN CORRESPONDENT.)

Foreign Medical Men.

FOR the first time a British qualified medical man has failed to satisfy the examiners in the so-called "colloquium," to which foreign physicians desirous of practising in Turkey are submitted. The unsuccessful candidate had come out as a missionary of a London society and the medical authorities refused to admit him to a second trial. It is evident that the Turks, who often act very hastily, have determined to limit the influx of medical missionaries into their country. I learn that in the near future every foreign medical man will have to pass the colloquium in the Turkish language and that the whole standard of the examination will be raised. Those who fail will have to take a complete medical course in the Constantinople Faculty of Medicine. Nobody can object to the raising of the standards of efficiency, but exception can be taken to the unfairness of doing so without warning. Such methods can only be prejudicial to the Turks themselves, who would be serious losers under any system of boycott.

Cerebro-spinal Meningitis.

It is reported that in the school Idadié of Macrikeuy, a district on the Sea of Marmora, three cases of cerebro-spinal meningitis have occurred. The municipality of the city has ordered a thorough disinfection of the school and its closure for a week.

Adulterated Soda Water.

A medical examination has shown that the bottled soda water produced here for drinking purposes is not of the required standard of purity, being frequently adulterated. The hygienic conditions of the factories have been found anything but satisfactory. The Ministry of the Interior has therefore advised the municipality to close all factories of soda water in which the beverage is not made according to strict hygienic requirements.

The German Hospital.

Dr. Alexander Cambouroglou Pasha, a well-known medical authority in Constantinople, who for a number of years superintended the surgical work of the German Hospital, has resigned that post, being succeeded by Dr. Orhan Abdi, professor of surgery in the Medical Faculty of Constantinople. The last-named gentleman is reputed to be one of the best surgeons of the city. He has studied in the University of Bonn, and was for a time attached to the Public Hospital of Hamburg, working in the surgical clinique of Professor Hoffas.

The Austro-Hungarian Hospital.

The Austro-Hungarian Government is reported to have bought a large piece of ground at Taxim (above Pera) on which it is intended to erect a new Austro-Hungarian

Hospital. The old one at Azap-Kapou does not meet all the growing requirements of the institution. The plans of the new establishment will be submitted by an architect from Vienna. The total cost of its erection is estimated at 2,500,000 francs. It will be equipped in the most modern style. The work of construction will begin in the month of February next.

The Aviator Blériot.

The well-known aviator Blériot has been rather unfortunate in his attempt to cross the Bosphorus in his aeroplane. His flying machine struck the roof of a house at its very first ascent and was totally disabled. Blériot himself sustained several injuries and lies at present in the French hospital, but is convalescent.

Medical Matters in Parliament.

Dr. Izmet Bey has drawn the attention of the Government in Parliament to the very unsatisfactory conditions of the sanitary system, demanding strict and immediate measures of prevention. He also described in lucid terms the deplorable state of those medical men who have been, under the new *régime*, dismissed from the posts of various municipal hospitals to shift for themselves. It is satisfactory to see that the Turkish Parliament admits of such questions of public concern being discussed in an open manner.

The School for Dentistry.

A dental department, properly staffed, has been opened at the premises of the old medical school in Kadirga (Stamboul).

An Epidemic of Typhoid Fever in Saloniki.

It appears that an epidemic of typhoid fever has broken out in Saloniki, following immediately after the epidemic of virulent small-pox. The municipality is accused of being dilatory in its methods of combating the evil and of paying very little, if any, attention to the sanitary and hygienic conditions of the place, which seem to be very unsatisfactory indeed.

Dec. 17th, 1909.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Endowment of the American Red Cross Society.

FOR the purpose of providing an organisation capable of administering properly the funds received by the American Red Cross Society for relief work President Taft has named an endowment fund committee with the Secretary of the Treasury, McVeagh, as chairman, and his assistant Norton as treasurer. The President of the United States, in an appeal, says the time has come when this society should be placed on a permanent and efficient basis by an endowment fund whose income will enable it to be prepared at all times to carry out the purposes for which it was created. It is the authorised official organisation of the United States for volunteer aid in time of war or great disaster. After such disasters as occurred at San Francisco and in Italy large contributions are received by the society, but in the constantly recurring disasters, where smaller communities are stricken, the contributions are far too small to meet the need. In the emergency which a great disaster creates the society should always have such a reserve fund immediately available as will enable it to act with the greatest promptness instead of waiting for the collection of money. By enabling the society to continue and extend its system of first-aid instruction and its courses in simple home nursing of the sick, a *personnel* valuable in time of disaster will not only be secured, but instruction of constant and continuing usefulness will be provided. The society received last year from the 50 per cent. of annual dues paid into the National Treasury less than $4000, while the Japanese Red Cross, from the annual dues of its 1,440,000 members, received over $1,000,000. Compared with other countries the American Red Cross endowment is infinitesimal. It consists of but $119,620, as against the following amounts of other countries, including funds and estimated value of property—viz.: Austria, $2,474,577; France, $4,471,476; Prussia, $4,889,948; Japan, $8,080,948. The President says: "The standing of this remarkable organisation throughout the world, its importance to our own country, and its beneficent influence for peace and goodwill in international relief work commend it to the public-spirited men and women of the United States."

The New Hall of the College of Physicians of Philadelphia.

The College of Physicians of Philadelphia is the oldest medical organisation in the United States, having been founded in 1787. The society is a scientific and not a teaching body, and has a library only second to that of the Surgeon-General in completeness. Excluding duplicates, it contains nearly 100,000 volumes. It contains some rare works, such as one of the six copies of Harvey's "De Motu Cordis et Sanguinis," owned in the United States, the copy having the more rare final leaf containing errata. The museum of the late Professor Mutter was given to the College; it covers a floor space of 3500 square feet, and is provided with several galleries. The new building, with furniture and fixtures, cost $400,000; it is 108 by 150 feet, and has small and large lecture-rooms, the large auditorium having a seating capacity for 500 persons. The building has been dedicated with fitting ceremonies, President James Tyson presiding, and a large number of distinguished guests being present.

Sterilising Defectives by Operative Procedures.

Readers of THE LANCET will recall that two or three years ago I recorded the enactment of a law in the State of Indiana legalising operations on defectives in order to prevent the reproduction of their kind. The results of that law have been awaited with great interest, and in a recent paper we are able to determine its effects in the practice of surgeons of that State, though no report has yet been made of the results in institutions for the care and custody of this class. Dr. Harry C. Sharp of Indianapolis states that since October, 1899, he has been practising vasectomy in accordance with the provisions of this law and has operated on 456 cases. These cases, he says, "have afforded splendid opportunity for post-operative observation and I have never seen any unfavourable symptoms." In his experience there is no atrophy of the testicle, no cystic degeneration, no disturbed mental or nervous condition following, but, on the contrary, the patient becomes of a more sunny disposition, brighter of intellect, ceases excessive masturbation, and advises his fellows to submit to the operation for their own good. He regards this method of preventing procreation as infinitely superior to all others proposed, in that it is endorsed by the persons subjected to it; there is no expense to the State and no sorrow or shame to the friends of the individual. He operates without an anæsthetic, ligates the spermatic cord once, divides below the ligature, and leaves the lower end patulous in order that the secretion of the testicle "may be emptied around the vessels of the pampiniform plexus and there absorbed, for it is through this process that the economy receives the tonic effect of the secretion." As to the danger that vasectomy may become popular with a certain class, Dr. Sharp advises a statute attaching criminal indictment to anyone submitting to the operation or performing the same without due process of law, which would be binding.

Radium Institute of America.

This institute was formed for the purpose of making a thorough study of radium and to discover any radiferous deposits in the United States. In order to study the therapeutic value of radium the projectors of the society will purchase the requisite quantities of the substance in Europe and establish a clinic in connexion with some hospital and administer treatment free to those who require it. The officers are:—President: Professor Chandler, of the department of chemistry, Columbia University; Vice-President: Dr. Robert Abbe, surgeon to St. Luke's Hospital; and Secretary: Professor Hallock, of the department of physics, Columbia University.

Tuberculosis "Preventorium" for Children.

This is the curious title of a hospital or sanatorium for the care and treatment of children suffering from tuberculosis who live in the crowded parts of cities. The establishment of this institution is due to the philanthropist, Nathan Straus, who has done so much to introduce pasteurised milk into New York and other cities for the benefit of children. The institution is located in the pine woods of Lakewood and was opened in May last, since which 92 boys and girls have been received. The improvement of these children has been remarkable, and it is now proposed to increase the capacity to 400.

Dec. 16th, 1909.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Restrictions on the Importation of Eucaine.

THE Government of India has prohibited the bringing by sea or by land into British India of eucaine, beta-eucaine, lactate-eucaine, and holocaine by means of the post, and restricts importation of these articles by any other means to cases in which they are imported by persons, or by their authorised agents, who have been specially permitted to import these drugs by a local government or administration or by the Madras Board of Revenue.

Increasing Prevalence of Rabies.

Rabies seems to be increasing to an alarming extent in India. The number of patients treated at the Kasauli Institute this year exceeds 1700, and fresh cases continue to arrive almost daily.

Vaccination in Eastern Bengal and Assam.

In Eastern Bengal and Assam considerable opposition to vaccination is reported in the Darrang district, from which the highest death-rate from small-pox was returned last year. In some villages, chiefly inhabited by Cacharis, a widespread refusal to accept vaccination is attributed to fear of the goddess Basanta, while similar prejudices are encountered among the Mahapurushyas of the Kamrup district, as well as among the Muttocks and the Miri tribes. The civil surgeon of Bakarganj reports, on the other hand, that mainly owing to the greater activity displayed in the presence of small-pox during the last quarter of 1908–09 the operations have exceeded those of the corresponding period of the previous year by 22,252, and mentions that from some of the affected localities "almost frantic letters were received begging for vaccinators to be sent." It is also stated that a much larger number of operations might have been performed in this district if more vaccinators were available, while the civil surgeon, Mymensingh, reports an increase of 26,300 operations, and attributes the large surplus to the good work done by the inspecting staff and to the assistance rendered by the assistant magistrate and by the subdivisional officers. Satisfactory returns also accrue from Faridpur, in which district the increase over the former year amounted to 22,500 operations.

The Sanitary Condition of Delhi Fort.

The Lieutenant-Governor of the United Provinces has appointed a committee, consisting of the Commissioner of Delhi, the sanitary engineer, and a third member to be nominated by the General Officer Commanding Meerut Division, to investigate the whole question of the sanitary surroundings of Delhi Fort, which was reported in an unsanitary condition during the last cold weather season.

Nov. 20th, 1909.

NOTES FROM CHINA.

(FROM OUR OWN CORRESPONDENT.)

Mosquito Suppression in Shanghai.

MALARIAL fever is endemic over the whole Chinese Empire and filariasis is also present in certain parts. Mosquitoes, a plague in some places, especially in those provinces where there are extensive paddy fields and native irrigation works, are tolerated with equanimity by the Chinese, and the problem of their extermination is not even considered. But in towns such as Shanghai, where there are large numbers of foreigners who are tormented during the greater part of the year by these insects, an effort has lately been made to benefit by the experiences of Ismailia and Panama, and with that object mosquito campaigns were undertaken in the two largest concessions—those of the British and French. There are four varieties ever present—viz., Anopheles sinensis, Culex fatigans, Armigeres ventralis, and Stegomyia fasciata. In February last the idea of a campaign for the suppression of mosquitoes in Shanghai was first mooted by a layman in the columns of the *North China Daily News*; it was generally received with amused scepticism, and many objections were raised. In the French Concession, however, a public subscription was started and a mosquito brigade enrolled. At the end of April an anti-mosquito campaign was inaugurated under the supervision of the British Municipal Health Department, and in both settlements the work was carried out actively throughout the summer. Stagnant waters were removed or kerosened weekly, creeks and ponds were cleaned, and all pieces of waste land were drained. Clearly worded regulations were issued and a regular house-to-house inspection, including yards, was carried out. Many foreign residents observed the regulations to the letter, but the Chinese were passive to such an extent that it was soon seen the inspectors would have to rely on their own unaided vigilance if any amelioration were to be expected. The results of these two simultaneous campaigns have been briefly as follows. In the spring there was a noticeable diminution as compared with former years. Then in June some weeks of trial and disappointment due to unusually wet weather brought the campaigns to a standstill and made the residents doubt the efficacy of the work of the brigades. The dryness of the succeeding months favoured the brigades and there was a remarkable decrease of mosquitoes, some residents estimating the abatement of the nuisance as much as 75 per cent., while others, an insignificant minority, said there was no improvement at all. As for the amount of work done by the Health Department alone, over 25,000 collections of stagnant water have been weekly oiled, and in one month (August) over 13,000 similar collections were removed in addition to the other work already mentioned. Much has been learnt during the initial year of the campaign and it is expected that it will now become an annual feature of the settlements. The whole cost of the work in the French Concession, which was on a less ambitious scale than that carried on by the Municipal Health Department in the English Concession, did not exceed 3000 taels, about £450. The full returns of the latter are not yet available.

Abdominal Wound Closed by Mesentery.

In a recent communication by Dr. Phillip Rees, Customs surgeon at Wuchow, an interesting example is given of the way in which the puncture of an abdominal wound may be closed by a protruding piece of mesentery, and so general peritonitis averted. The patient walked up the steps of the hospital, waited his turn with the other out-patients, and then stated that nine days previously he had been stabbed in the abdomen. On removing his clothes a large fan-shaped mass was seen protruding from a hole just above and to the right of the umbilicus. It was some five or six inches in length, about one inch thick at the base, and covered with bleeding granulation tissue. A quantity of pus was oozing up from the opening, and some more pus had burrowed beneath the skin all round. The mass was evidently great omentum. The treatment consisted in ligaturing the base as for an ovarian pedicle, cutting away the omentum and applying fomentations. In a few days skin had grown over the site of the wound, and the man regained good health. The only result of his accident is the possession of a double umbilicus. In this case, as in many others, the mesentery proved the patient's best friend.

The Present Position of Opium-Smoking in Peking.

Reports are constantly coming to hand of the progress the anti-opium struggle is making in all parts of the Empire. Much is being loosely written without the writers having taken the trouble personally to verify their facts. In some provinces the demand for opium continues as great as ever, and efforts are being made to meet it without official interference to more than a nominal extent. In the province of Shantung, however, where there has been of late a very great increase of opium imports, apparently from Shanghai, the authorities at Kiaochou (the Customs port) confiscated 40 cases and imprisoned the owners, thus raising an important legal point as to whether they could do so on an article which comes under Treaty regulations and has paid duty according to stipulations. The following statement of how matters stand in Peking, the fountain-head of all the anti-opium edicts, may be taken as a fairly accurate representation of the facts of the case, as it is the outcome of personal observations I have made in conjunction with Chinese assistance. As far as hospital experience goes one would at first say that opium-smoking had almost disappeared. The Chinese have now become secretive and deceptive about it, and it is now very rare for a man to seek treatment for smoking or to confess, when being treated for other complaints, that he is still addicted to the drug. But among

the people about three-tenths have stopped and among the officials about eight-tenths. The latter, however, are subject to examination, and so stop for varying periods, resuming their smoking after examination. An exception must be made in the case of army officers—the habit would seem to be entirely abolished in this class of men. It is now rather difficult to buy opium in Peking unless under licence, which permits a smoker to buy 5 drachms weight. Each licence costs 10 cents and is available for three months after issue. Government regulates the amount purchasable each time so that a gradual diminution takes place each renewal. The number of opium dens is just about half of what it was 18 months ago. They are all illicit as the former public ones are suppressed. The native newspapers from time to time note cases of raids made by the police, the punishment inflicted on the owners when caught averaging £1 5*s.*, or a month's imprisonment. The price of opium has increased, the native product being double the rate before the edicts and the Indian product about one-third more. Opium pipes are difficult to purchase openly though they are bought secretly. As for morphia there was undoubtedly a great rise in the number of opium-smokers who left off opium and took to hypodermic injections of morphia at the time of the anti-opium edicts and for some months after their issue. But this craze has died down, and it is at least six months since I have seen a man come to hospital with marks of the needle-pricks on his arms. The reason for the diminution is simply an inability to procure the drug or the hollow needles. At the same time there is a certain amount of morphia-taking still; it is sold in an underhand way in Japanese chemists' shops. By those who are willing to pay the cost of this comparatively expensive luxury it can always be got, but if one were to compare Peking with other large cities such as New York there would be no difficulty in proving that the number of morphia maniacs in the latter city is very much greater. A great deal of opium is consumed in the form of anti-opium pills. After a large number of inquiries made over a period of several months the number of habitual "anti-opium" pill takers may be placed at between one-half and three-quarters the former total of opium-smokers. This means that the form of taking opium has merely been changed, for, as was shown in former articles in THE LANCET, opium is nearly always present in these pills. Fortunately this is a less baneful way—that is to say, a man can satisfy his narcotic craving in a way that does not stupefy him, sap his energies to any appreciable extent, or curtail his working hours. Many men take a pill now and then and go on with their work without inconvenience.

Nov. 22nd, 1909.

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

M.S. EXAMINATION.

*William Stephen Fenwick, B.Sc., Charing Cross Hospital; Robert Milne, M.D., and Harold Edward Ridewood, M.D. (University medal), London Hospital; and Harold William Wilson, St. Bartholomew's Hospital.

* Obtained the number of marks qualifying for the University medal.

M.D. EXAMINATION.

Branch I., Medicine.—Arthur Beeley, B.S., University of Leeds; James Francis Blackett, B.S., University of Bristol; Meyer Cohen, B.S., University College Hospital; Arthur Fothergill, B.S., University of Leeds; Alexander Cecil Gurney, St. Bartholomew's Hospital; Walter Leopold Holyoak, B.S., St. Mary's Hospital; Habibmia I., Janmahomed, B.S. (University medal), Guy's Hospital; Lytton Pelham Maitland, B.S., Charing Cross Hospital; Edward Farminer Milton, B.S., Guy's Hospital; Basil Thomas Parsons-Smith, B.S., and Walter Patey, B.S., St. Thomas's Hospital; Jeffrey Ramsay, B.S., St. Bartholomew's Hospital; William Sidney Sweet, B.S., University College Hospital; Robert Stanton Woods, London Hospital; Arthur Stanley Woodwark, B.S., St. Bartholomew's Hospital; and Carl Ernst Zundel, B.S., London Hospital.

Branch IV., Midwifery and Diseases of Women.—Ernest Marshall Cowell, B.S., University College Hospital; John Harmer Drew, B.S., St. Thomas's Hospital; Paul Leon Guiseppi, B.S., St. Bartholomew's Hospital; James Littleton Lawry, B.S., London Hospital; Ivan Clarkson Maclean, B.S., St. Thomas's Hospital; and Emily Mary S. Mecredy, B.S., and Violet Ackroyd Turkhud, B.S., London (Royal Free Hospital) School of Medicine for Women.

Branch V., State Medicine.—Eric Henry Rhys Harries, B.S., London Hospital and University of Liverpool; Leonard Fabian Hirst, B.S., University College Hospital; and Sophia Seekings, B.S., London (Royal Free Hospital) School of Medicine for Women.

Branch VI., Tropical Medicine.—Arthur Brownfield Fry, London Hospital and London School of Tropical Medicine; George Montagu Harston, Charing Cross Hospital and London School of Tropical Medicine; Robert Archer Lloyd, St. Bartholomew's Hospital; and Shantaram Raghunath Shirgaokar, B.S., St. Mary's Hospital and London School of Tropical Medicine.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—J. N. Beadles (Sections I. and II.), Westminster Hospital; R. J. Cyriax (Sections I. and II.), St. Mary's Hospital; C. P. A. de L. Pereira (Section I.), Birmingham; and E. D. Richardson (Section I.), St. Mary's Hospital.

Medicine.—O. R. Kelly (Sections I. and II.), Westminster Hospital; B. W. Loewenberg (Section I.), Berlin; A. Y. Massey (Section I.), Trinity University, Toronto; and J. G. Morgan (Section I.), London Hospital.

Forensic Medicine.—O. R. Kelly, Westminster Hospital; J. G. Morgan, London Hospital; W. E. North Smith, Durham and St. Mary's Hospital; and A. H. Rich, University College Hospital.

Midwifery.—K. Baylis, Royal Free Hospital; J. N. Beadles, Westminster Hospital; and J. J. Hughes, Middlesex Hospital.

UNIVERSITY OF BIRMINGHAM (FACULTY OF MEDICINE).—The following candidates satisfied the examiners at the Final Examination for the degrees of M.B., Ch.B., held in December, 1909:—

Norman Alexander Boswell, Harold Gordon Browning, Mary Clarke, and Humphrey Francis Humphreys.

LONDON SCHOOL OF TROPICAL MEDICINE.—The following gentlemen passed the examination in tropical medicine held at this school at the end of the thirty-first session, recently concluded:—

Major H. J. Walton, I.M.S.,* Dr. A. Hutton (Colonial Service),* Dr. G. D'Amico (Colonial Service),* Captain A. B. Fry, I.M.S.,* Dr. J. T. Smalley (Colonial Service), Dr. F. H. Storey (Colonial Service), Captain F. E. Bissell, R.A.M.C., Dr. C. E. Vail, Dr. B. W. Cherrett (Colonial Service), Dr. E. N. Cook, Dr. K. S. Mhaskar, Dr. W. J. Woodman (Colonial Service), Captain T. H. Gloster, I.M.S., Dr. B. Day, Dr. R. McC. Linnell, Dr. G. Olpp, Dr. F. N. Smartt (Colonial Service), Captain R. F. Baird, I.M.S., Captain E. C. Hodgson, I.M.S., Dr. J. Lindsay (Colonial Service), Dr. G. H. Gallagher (Colonial Service), Dr. J. F. D'Mello, Dr. C. F. Strange, Dr. G. M. Sanderson (Colonial Service), Dr. A. G. Carment, Dr. W. B. Carter (Colonial Service), and Dr. H. Catto (Colonial Service).

* With distinction.

FOREIGN UNIVERSITY INTELLIGENCE.—*Augusta (Medical College of Georgia):* Dr. Charles J. Montgomery has been appointed Extraordinary Professor of Hygiene and Forensic Medicine.—*Baltimore (University of Maryland):* Dr. Howard J. Maldeis has been appointed Lecturer of Histology and Embryology.—*Berne:* Dr. Th. Christen has been recognised as *privat-docent* of Physical Therapeutics.—*Bonn:* Dr. Paul Krause, Extraordinary Professor and Director of the Medical Polyclinic, has been appointed Ordinary Professor.—*Bordeaux:* Dr. Cassaët, *agrégé*, has been appointed to the Chair of General Pathology and Therapeutics in succession to Dr. Vergely.—*Breslau:* Dr. Otfried Foerster, *privat-docent* of Nervous and Mental Diseases, and Dr. Ludwig Fraenkel, *privat-docent* of Gynæcology, have been granted the title of Professor. Professor Allard, formerly of Greifswald, who was recently appointed *Oberarzt* of the University clinic under Professor Minkowski, has been recognised as *privat-docent* of Medicine.—*Erlangen:* Dr. Richard Kümmel has been recognised as *privat-docent* of Ophthalmology.—*Giessen:* Professor R. O. Neumann, who is both M.D. and Ph.D., and who is now acting temporarily as Director of the Hygienic Institute in Heidelberg, has been offered the chair of Hygiene, together with the Directorate of the institute, which will be vacant by the recent appointment of Professor Kossel to Heidelberg.—*Greifswald:* Dr. O. Gross, *oberarzt* of the University Medical Clinic, has been recognised as *privat-docent* of Medicine.—*Hamburg:* Dr. Julius Kister of the Hygienic Institute has been granted the title of Professor.—*Heidelberg:* Dr. E. Kehrer, *privat-docent* of Gynæcology, has been promoted to an Extraordinary Professorship.—*Nantes:* Dr. Labbé has been appointed Assistant Professor of Natural History.—*Paris:* The Academy Prize of 1000 fr. (subject for this year, "Pathogeny of Pulmonary Œdemata") has been awarded to Dr. Hallion and Dr. Nepper of Paris. The Alvarenga Prize of 800 fr. for the best paper on any medical subject has been awarded to Dr. Leclerq of Paris for his work on "Diabetes and Exophthalmic Goitre." The Apostoli Prize of 600 fr. (open to foreigners) for the best work on electro-therapeutics has been awarded

to Dr. A. Zimmern and Dr. S. Turchini, both of Paris, for their work on "The Thermic Effects of High Frequency Currents." The Francis Joseph Audiffred Prize of 24,000 fr. for a cure for phthisis has not been awarded, but a sum of 2000 fr. has been granted by way of encouragement to Dr. Moussu, Professor in the Veterinary School of Alfont, and Dr. Ch. Mantoux of Cannet for their work on the intradermo reaction to tuberculin in animals. Also 500 fr. have been similarly awarded to Dr. L. Rénon, professor *agrégé*, Paris, for his "Practical Treatment of Pulmonary Tuberculosis." The Barbier Prize of 2000 fr. for curative methods of diseases generally looked upon as incurable has been divided by the Academy between (*a*) Dr. Levaditi and Dr. J. Roché, both of Paris, for their work "Syphilis: Experimentation, Microbiology, Diagnosis"; and (*b*) Dr. P. Coyne, Professor in Bordeaux, and Dr. Banché, *agrégé* in Bordeaux, for their work "Polyvalent Serum in Bacillary Dysentery." The Mathieu Bourceret Prize of 1200 fr. for the best work on the circulation of the blood has been awarded to Dr. Léon Frédéricq, professor in the University of Liège, for his "Collection of Papers on the Activity of the Heart." The Buignet Prize for the best work on the applications of physics or chemistry to medical science has been awarded to Dr. H. Guilleminot of Paris for his "Collection of Papers on the Biological Action of the New Radiations." The Théodore Herpin Prize of 3000 fr. for the best work on epilepsy and nervous diseases has been awarded to Dr. P. Lejonne and Dr. J. Lhermitte, both of Paris, for their work on the "Myopathy of the Aged." The Laborie Prize of 5000 fr. to the author of the work which has made a marked advance in surgery has been awarded to Dr. P. Redard, of Paris, for his "Collection of Papers on Orthopædic Surgery." The Meynot Prize of 2600 fr. for the best work on eye diseases has been awarded to Dr. A. F. Terrien of Paris, for his "*Précis* of Ophthalmology" and his "Syphilis of the Eye and its Appendages." The Tarnier Prize of 6750 fr. for gynæcological work has been awarded to Dr. J. L. Faure, *agrégé* of Paris, for his "Papers on Hysterectomy."

THE MEDICAL TREATMENT OF LONDON SCHOOL CHILDREN.—The Education Committee of the London County Council on Dec. 22nd, 1909, considered a report by the day schools subcommittee as to the charges to be made for medical treatment of their children to parents who can afford to pay. The subcommittee stated that counsel advised that the local authority was not entitled to totalise the whole of its payments for medical treatment and divide it equally by the number of children treated, but that the charge to the parent should represent, as nearly as possible, the actual cost to the Council of each individual child. The payments to be made to the eight hospitals with which the Council had made arrangements on a financial basis varied in respect of each hospital and also in respect of each of the three ailments proposed to be treated. It would be undesirable to differentiate in the charges at the different hospitals, but it would be possible to vary the charges to be made in respect of each ailment treated. It was calculated that the average cost of the eye cases would be approximately 4*s.* and of the ear cases 5*s.* The cost of ringworm treatment was not known with any certainty, and the subcommittee had not dealt with it at present. In view of the opinion given by counsel it appeared that payments by parents must be based on the number of attendances made at the hospital, and the average number of attendances for eye and ear cases might be taken at three. On this basis the cost per attendance would be 1*s.* 4*d.* and 1*s.* 8*d.* respectively. Each case should be considered on its merits, and the parents should be required to pay as large a proportion as they could. The care committees, which had in their possession the necessary information, should undertake this work. Although it was extremely difficult to fix a scale of charges which would not entail hardship in some cases, the subcommittee felt that some system should be followed to avoid any wide variation in different parts of the county. They suggested as a standard family two parents and four children, having a net income of 17*s.* 6*d.* a week. Below this figure no contribution should be demanded, but families better off by reason of having fewer children or larger incomes should be required to contribute on a graduated scale. The subcommittee also suggested a scheme on similar lines with regard to travelling expenses to the hospitals. The proposals were adopted after a short discussion, in the course of which the advocates of school clinics took occasion to point out that if their proposals had been adopted much of the difficulty of arranging a scale of payments by parents, particularly for travelling expenses, would have been avoided.

A DEVONSHIRE CENTENARIAN.—At the last meeting of the Newton Abbot board of guardians it was reported that the oldest recipient of out-door relief, a woman of Torquay, had recently died, aged 102 years and 314 days.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—The next meeting will be held in the Physiological Department, Guy's Hospital, London, on Friday, Jan. 7th, at 1.30 P.M., and will be resumed on Saturday, Jan. 8th, at 10 A.M.

DONATIONS AND BEQUESTS.—By the death of Mrs. G. A. Gassiot the following bequest under the will of her late husband, Mr. Charles Gassiot, becomes operative—namely: The principal sum allocated for the payment of her annuity of £5000 to St. Thomas's Hospital (to which Mr. Gassiot also left the residue of his estate).

THE NORWOOD SANATORIUM.—This institution, at which considerable investigations into the causes and the best means of treatment of alcoholism have been and are being carried out, has been removed to larger premises, known as The Mansion, Beckenham Park, Kent. The last report will be sent to any medical practitioner on his request.

THE BRITISH RED CROSS SOCIETY.—A largely attended meeting was held recently at Torquay under the presidency of Lady Churston, when it was decided to form a branch of the British Red Cross Society in that town. It was stated at the meeting that more financial support had been guaranteed from Devon than from any other county, and it had also a larger number of members.

LITERARY INTELLIGENCE.—A new series of "National Health Manuals" are being prepared under the editorship of Dr. T. N. Kelynack. All forms of social effort and enterprise, in so far as they touch medico-sociological problems, will be dealt with. The series, which will consist of 12 volumes, will be issued by Robert Culley. The first volume, dealing with "Infancy," will be issued early in the new year.

UNIVERSITY OF OXFORD.—An examination for a Radcliffe Travelling Fellowship of the annual value of £200, tenable for three years, will be held on Feb. 22nd and the three succeeding days. Candidates must have passed all the examinations for the degrees of B.A. and B.M., and they must not have exceeded four years from the time of passing the last examination for the degree of B.M. The successful candidate must before election declare that he intends to devote himself during the period of his tenure of the Fellowship to the study of medical science and to travel abroad with a view to that study. Papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Any candidate desiring to offer in addition a special branch of either medicine or surgery must send notice of this to the Regius Professor of Medicine, to whom all intending candidates should send their names, addresses, and qualifications, on or before Saturday, Feb. 5th.—The professor of pathology gives notice that an election to the Philip Walker Studentship in Pathology will take place in February next. The studentship was founded "for the furtherance of original research in pathology." It also is of the annual value of £200, payable quarterly in advance, and is tenable for three years. The student may be of either sex and need not necessarily be a member of the University of Oxford nor be legally qualified to practise medicine. While holding office the time of the student must be devoted to original pathological research. The place and the nature of the studies of the student are subject to the approval of the professor of pathology, but the student is bound to pursue these studies within the University during at least three terms of the tenure of his studentship. Intending candidates are requested to send letters of application along with three testimonals (one of which should vouch for the candidate's personal character and general education) to "The Registrar of the University, Clarendon Building, Oxford," so as

to reach him on or before Feb. 14th. Testimonials ought to be framed with a view to setting forth the candidate's capacities for undertaking research work, and the greatest weight will be attached to those granted by heads of laboratories in which the candidate has worked. Copies of the regulations can be had on application to the registrar of the University.

LONDON SCHOOL OF TROPICAL MEDICINE.—A very interesting dinner took place at the Trocadéro on Thursday, Dec. 23rd, when the students of the winter session dined under the presidency of Captain F. E. Bissell, R.A.M.C. The occasion was to celebrate a record entry of students at the school, 59 having been in attendance. The dinner, which was largely attended, included as guests of the evening Sir Patrick Manson, Dr. C. W. Daniels, and Mr. P. J. Michelli, C.M.G.

AN AFFLICTED MEDICAL HOUSEHOLD. — The mournful coincidence of the death of three members of one family occurring within a few days of each other in the same house happened at Hove recently. Early in December the death occurred there of Mr. Reginald Rygate, L.R.C.P., L.R.C.S. Irel., the fourth son of Mr. J. J. Rygate, M.B., M.R.C.S., L.S.A. A few days after the funeral Dr. J. J. Rygate and his wife died and were buried on the same day in Hove cemetery. Dr. J. J. Rygate, who had retired from the medical profession, was late medical officer of health and public analyst for St. George's-in-the-East.

THE ANTIVIVISECTION HOSPITAL, BATTERSEA.—At Battersea, on Tuesday, Dec. 28th, Mr. Troutbeck held two inquests upon patients who had been under treatment at the Antivivisection Hospital. In the case of the first patient, who later died at the Wandsworth Infirmary, it was stated that although she waited nearly two hours at the hospital she saw no medical man at all. In the case of the second patient, a little girl who had received burns which afterwards proved fatal, the allegation was that the patient saw no medical man until the third day of attendance, and on one occasion waited three hours. The acting medical officer at the Antivivisection Hospital said that he was at the hospital from 9 until 11, and the nurse drew his attention to serious cases, a statement which he qualified by saying that he saw all the cases himself, but there were certain hours when he was not at the hospital. The jury returned a verdict of "Accidental death" in both cases, coupling each verdict with the rider that there had been neglect on the part of the hospital.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Dec. 17th, 1909. There were present: Dr. F. de Havilland Hall in the chair; Mr. J. Brindley James, Dr. M. G. Biggs, Dr. M. Greenwood, Dr. F. J. Allen, Mr. H. P. Symonds, Mr. F. S. Edwards, Dr. St. Clair B. Shadwell, Dr. A. C. Hartley (Bedford), Dr. W. Knowsley Sibley, Dr. G. E. Herman, Dr. F. C. Martley, Dr. J. W. Hunt, Dr. W. A. Dingle, Dr. F. S. Palmer, and Dr. J. B. Ball. The records of the society for the month of November are very satisfactory. The sickness experienced was under the expectation and considerably less than had been usually experienced in the month of November. The number of new entrants has been exceptionally large and another gratifying feature of the business is the number of members who are availing themselves of the opportunity given by the present rules of increasing their sickness benefit to £6 6*s.* per week. Prospectuses and all further particulars on application to Mr. F. Addiscott, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

BOOKS, ETC., RECEIVED.

AMERICAN LARYNGOLOGICAL ASSOCIATION (Secretary: Dr. JAMES E. NEWCOMB, New York City), New York.
Transactions of the Thirty-first Annual Meeting of the American Laryngological Association held at Boston, Mass., May 31st, June 1st and 2nd, 1909. Price not stated.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.
Serums, Vaccines, and Toxines in Treatment and Diagnosis. By Wm. Cecil Bosanquet, M.A., M.D. Oxon., F.R.C.P. Lond., and John W. H. Eyre, M.D., M.S. Dunelm, F.R.S. Edin. Second edition, thoroughly revised. Price 7*s.* 6*d.* net.
Hypnotism and Treatment by Suggestion. By J. Milne Bramwell, M.B., C.M. Price 5*s.* net.
Syphilis. By Sir Jonathan Hutchinson, F.R.S., LL.D., F.R.C.S. New and enlarged edition. Price 10*s.* 6*d.* net.
Letts's Medical Diary for the Year 1910. Space for 54 patients' names daily. Prices 2*s.* 6*d.*, 3*s.* 6*d.*, and 4*s.* Space for 108 patients' names daily. Prices 4*s.* and 5*s.*
Letts's Office Diary No. 10 for 1910. Price 4*s.* 6*d.*
Letts's No. 36 Rough Diary for 1910. Interleaved blotting. Price 1*s.*
Letts's No. 34 Rough Diary for 1910. Interleaved blotting. Price 1*s.*
Letts's No. 31 Rough Diary (foolscap size). Price 1*s.* 6*d.*, or with blotting, 2*s.* 6*d.*

CHATTO AND WINDUS, London.
Herbert Fry's Royal Guide to the London Charities. 1910. Edited by John Lane. Price 1*s.* 6*d.*

CHURCHILL, J. AND A., London.
Allen's Commercial Organic Analysis. Volume I. By the Editors and the following Contributors:—E. F. Armstrong, J. L. Baker, G. C. Jones, E. Schlichting, and R. W. Sindall. Fourth edition. Entirely rewritten. Edited by Henry Leffmann, M.A., M.D., and W. A. Davis, B.Sc., A.C.G.I. Price 21*s.* net.

FISCHER, GUSTAV, Jena.
Die Spezielle Chirurgie in 60 Vorlesungen. Kurzgefasstes Lehrbuch für Aerzte und Studierende. Von Prof. Dr. Edmund Leser. Price, paper, M.26.50; in Halbfranz geb., M.29.
Allgemeine Biologie. Von Oscar Hertwig. Dritte umgearbeitete und erweiterte Auflage. Price, paper, M.16; bound, M.18.50.
Die Morphologie der Missbildungen des Menschen und der Tiere. Herausgegeben von Dr. Ernst Schwalbe. III. Teil. Die Einzelmissbildungen. II. Lieferung. Price M.10.
Die Leukocytose bei Scharlach und anderen Mischinfektionen. Von Dr. H. Bennecke. Price M.2.50.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
The Principles of Pathology. By J. George Adami, M.A., M.D., LL.D., F.R.S., and Albert G. Nicholls, M.A., M.D., D.Sc., F.R.S. (Can.) Volume II. Systemic Pathology. Price 30*s.* net.

GILI, GUSTAVO, Barcelona.
Tratado de Fisiología. Fisiología General. Por los Doctores L. Rodrigo Lavin y A. Pi y Suñer. Price, paper, Pesetas 18; cloth, Pesetas 20.

GREEN, WILLIAM, AND SONS, Edinburgh and London.
Pathogeny of the Neurasthenic States. By Dr. Paul Dubois. Authorised translation. Price 2*s.* net.

GOVERNMENT PRINTING OFFICE, Washington.
Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second Series. Vol. XIV.

HIRSCHWALD, AUGUST, Berlin.
Die psychische Krankenbehandlung in ihren wissenschaftlichen Grundlagen. Von Berthold Kern. Vortrag, gehalten im Verein für innere Medizin in Berlin am 15. November, 1909. Price M.1.20.

KIMPTON, HENRY, London. (STENHOUSE, ALEXANDER, Glasgow.)
Surgical Diagnosis. By Edward Martin, M.D. Price 28*s.* net.

LIVINGSTONE, E. AND S., Edinburgh.
Catechism Series. Public Health. Part I. Water. Part II. Air and Ventilation, Warming, Lighting, and Climate. Part III. Sewage and its Treatment. Part IV. Vital Statistics, Dwellings, Meteorology. Part V. Epidemiology, Food, Burial, Water-closets, Disinfectants, Heating, Hospitals. Second edition, revised by W. Robertson, M.D., D.P.H. Price 1*s.* net each part, or five parts, bound in cloth, 4*s.* 6*d.*

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta.
A Practical Guide to the Administration of Anæsthetics. By R. J. Probyn-Williams, M.D. Second edition. Price 4*s.* 6*d.* net.

PANINI OFFICE, Allahabad, India.
The Dietetic Treatment of Diabetes. By B. D. Basu, Major, I.M.S. (retired). Second edition, revised and enlarged. Price Re. 1-8-0.

REBMAN, LIMITED, London.
A Short Handbook of Cosmetics. By Dr. Max Joseph, Berlin. Third edition, with 151 Recipes. Authorised English Translation. Price 2*s.* 6*d.* net.

SAUNDERS (W. B.) COMPANY, London and Philadelphia.
Surgery, its Principles and Practice. By Various Authors. Edited by William Williams Keen, M.D., LL.D., and John Chalmers DaCosta, M.D. Volume V. Price, cloth, 30*s.* net; half morocco, 34*s.* net.
Treatment of the Diseases of Children. By Charles Gilmore Kerley. Second edition, revised. Price 21*s.* net.
Surgical Diagnosis. By Daniel N. Eisendrath, A.B., M.D. Second edition, thoroughly revised and enlarged. Price 28*s.* net.

SUPERINTENDENT GOVERNMENT PRINTING, INDIA, Calcutta.
Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India. New Series. No. 36. Observations on Rabies: With Special Reference to an Atrophic Form of the Disease Occurring in Animals. By Major G. Lamb, M.D., I.M.S., and Captain A. G. McKendrick, M.B., I.M.S. Price 8 Annas, or 9*d.*

THACKER, W., AND CO., LIMITED, Bombay. (THACKER, W., AND CO., London.)
Military Sanitation for Soldiers Serving in Hot Climates. By Major Robert J. Blackham, D.P.H. Lond., R.A.M.C., of the Middle Temple, Barrister-at-Law. Price not stated.

WALKER, JOHN, AND CO., LIMITED, London.

Walker's Diaries for the Year 1910:—No. 4/94. Morocco, "back-loop" and pencil. Price 3s. No. 3/163. Long-grain leather, "back-loop" and pencil and pockets. Price 3s. 6d. No. 7/57. Cloth, no pencil, no pockets. Price 9d. No. 15/225, "Small Graphic." Long-grain leather, pockets. Price 1s. 6d. No. 17/237, "Large Graphic. Seal-grain" leather. Price 2s. 6d. Quarterly Pocket (Vest) Diary. In four parts. Binding No. 622. Seal-grain. Price 1s. 6d. "Ruby" Diary (very small for vest pocket). Seal-grain leather. Price 1s.

Calendars for Waistcoat Pocket:—"Happy Months" Calendar. Prices 6d., 1s., and 1s. 6d. "Golden Thoughts" Calendar. Prices 4d. and 6d. Calendar Card. No. 0 (for vest pocket).

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED† London.)

Lectures on Surgical Nursing. By E. Stanmore Bishop, F.R.C.S. Eng. Cloth, 2s. 6d. net; leather, 3s. 6d. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

AUBREY, THOMAS, M.B. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Warmley (Gloucestershire) District Council.

DIXON, T. B., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician at the Bristol General Hospital.

ERSKINE, A. MCCONNELL, M.D. R.U.I., D.P.H., has been appointed Medical Officer to the Goole Board of Guardians and Public Vaccinator to the Goole Union.

FITZWILLIAMS, DUNCAN C. L., M.D., Ch.M. Edin., F.R.C.S. Eng., has been appointed Surgeon to Out-patients at St. Mary's Hospital.

FREER, R., M.D. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Rugeley District of the county of Stafford.

HILL, HEDLEY, M.D. Durh., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Anæsthetist to the Bristol General Hospital.

HUDSON, ARTHUR CYRIL, M.D., B.C. Cantab., F.R.C.S. Eng., has been appointed Curator and Librarian to the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

HUGHES, GERALD S., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Surgeon (with care of Out-patients) to the York County Hospital.

KEANE, F., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ballina District of the county of Mayo.

MINETT, E. P., M.R.C.S., L.R.C.P. Lond., has been appointed Bacteriologist to the Royal London Ophthalmic Hospital (Moorfields Eye Hospital).

MORGAN, F. C., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon at the Bristol General Hospital.

MORGAN, J. F. H., L.R.C.P. Lond., M.R.C.S., has been appointed Assistant House Physician at the Bristol General Hospital.

OLVER, RICHARD SOBEY, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer for the No. 1 District by the St. Austell (Cornwall) Board of Guardians.

ROBERTSON, D., M.B., B.Ch. Edin., has been appointed Casualty Officer to the Bristol General Hospital.

ROYAL, WILLIAM JOHN, L.D.S. F.P.S. Glasg., has been appointed Dentist to the Workhouse by the Clutton (Somerset) Board of Guardians.

STRAIN, THOMAS, M.B., Ch.B. Glasg., D.P.H. Camb., has been appointed Assistant County Medical Officer to the Ayrshire County Council.

THYNE, W., M.D., M.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Barnet District of the county of Hertford.

WILLIAMS, H. W. S., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Holywell District of the county of Flint.

WILSON, C. M., M.B., B.S. Durh., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Registrar to St. Mary's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL INFIRMARY.—Assistant Surgeon.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—House Surgeon for six months. Salary at rate of £20 per annum, with board and residence.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Senior House Surgeon. Salary £85 per annum.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Third House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

BRISTOL ROYAL INFIRMARY.—Honorary Dental Anæsthetist.

BRISTOL, UNIVERSITY OF.—Demonstrators of Anatomy and of Physiology. Salaries £180 per annum.

BUXTON, WYE HOUSE ASYLUM.—Assistant Medical Officer. Salary £120 per annum, all found.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £60 per annum, with board, residence, and laundry.

CANCER HOSPITAL, Fulham-road, London, S.W.—Surgical Registrar. Salary 50 guineas per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, &c.

GRIMSBY AND DISTRICT HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, attendance, and washing.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per annum, with full board and laundry.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence.

IRELAND, NATIONAL UNIVERSITY OF.—Extern Examiners in Chemistry, Anatomy, Physiology, Materia Medica, Medicine, Medical Jurisprudence and Hygiene, Pathology, Surgery, Ophthalmic Surgery, Midwifery.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—Research Students on Malaria, Parasitology, Pathological Chemistry. Salaries £150 to £250 per annum. Also Research Assistant at the Runcorn Laboratories. Salary £120.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Pathologist and Bacteriologist. Salary at rate of 50 guineas per annum.

LONDON THROAT HOSPITAL, 204, Great Portland-street, W.—House Surgeon. Salary £50 per annum.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Physician.

NAVAL FORCES IN THE UNITED KINGDOM.—Two Dental Surgeons. Salary £1 per diem, and travelling expenses.

NEW ZEALAND, OTAGO UNIVERSITY, Dunedin.—Bacteriologist and Lecturer in Public Health. Salary £500 per annum.

PEKING, S.P.G. MEDICAL MISSIONS HOSPITAL.—Medical Man.

PRESTON ROYAL INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board, washing, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—Pathologist and Registrar. Salary £80 per annum, and lunch.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN.—Honorary Physician to Out-patients.

ST. GEORGE'S DISPENSARY, Surrey-row, Blackfriars-road, S.E.—Assistant Surgeon Ear and Throat Department. Salary £50 per annum.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Uxbridge-road, W.—Honorary Anæsthetist.

SALOP INFIRMARY AND COUNTY HOSPITAL.—House Physician. Salary at rate of £70 per annum, with board and apartments.

SEAMEN'S HOSPITAL SOCIETY.—Assistant Physician and Assistant Surgeon at the Dreadnought Hospital, Greenwich.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

STIRLINGSHIRE SECONDARY EDUCATION COMMITTEE.—Two Medical Inspectors of School Children (one female). Salaries £300 per annum, with expenses.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

SURREY DISPENSARY, Southwark, S.E.—Resident Medical Officer. Salary £140 per annum, with apartments, coals, gas, and attendance.

THROAT HOSPITAL, Golden-square, W.—Surgical Registrar. Salary 20 guineas per annum.

WARWICK, HATTON ASYLUM.—Junior Assistant Medical Officer. Salary £150, with full board.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Surgeon.

WESTMINSTER HOSPITAL.—Assistant Pathologist and Curator of the Museum. Salary 100 guineas per annum.

WOOLWICH INFIRMARY, Plumstead.—Assistant Medical Officer. Salary £150 per annum, with apartments, rations, and washing.

YORKSHIRE, WEST RIDING.—Medical Inspector of Elementary School Children. Salary £300 per annum and expenses.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Berkhamsted, in the county of Hertford,; and at Birmingham, in the county of Warwick.

Births, Marriages, and Deaths.

BIRTHS.

DUNSTAN.—On Dec. 23rd, 1909, at Water-lane, Brixton Hill, S.W., the wife of Walter Dunstan, M.B., of a daughter.

NEWTON.—On Dec. 27th, 1909, at "Tylecote" Ranmoor, Sheffield, the wife of Duncan Gray Newton, M.B., C.M., F.R.C.S. Edin., of a son.

PRESTON.—On Dec. 29th, 1909, at 18, Thorpe Mansions, Norwich, the wife of Frederick Preston, L.R.C.P. Lond., M.R.C.S. Eng., a daughter.

MARRIAGES.

CLARE—BELL.—On Dec. 18th, 1909, at the Parish Church, Ewell, Thomas Charles Clare, M.B., F.R.C.S., to Annie Turnbull, eldest daughter of Robert Bell, M.D., of Stoneleigh, Ewell, Surrey.

COLBRAN—HARPER.—On Dec. 23rd, 1909, at St. George's, Bloomsbury, W., C. Leslie Colbran, L.D.S. R.C.S. Eng., to Gertrude, eldest daughter of the late R. Blucher Harper and Mrs. Harper.

DEATHS.

EDGAR.—On Dec. 25th, 1909 at Townhead, Settle, suddenly, James Walker Edgar, M.D.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE HOSPITAL GAZETTES.

Guy's Hospital Gazette (Dec. 25th) has for its chief article an interesting account of the life of Dr. Thomas Hodgkin from the pen of Sir Samuel Wilks, whose memory carries him well back to the zenith of Hodgkin's pathological fame. He recalls the fact that although Hodgkin was curator in the Guy's Hospital museum and lecturer on pathological anatomy to that rapidly rising school from 1825 to 1837, yet he was passed over for the post of physician when a vacancy occurred on the hospital staff. Sir Samuel Wilks suggests that this may have been due to the hostility of the treasurer, an autocratic individual commonly known as "King Harrison," who was annoyed at Hodgkin's independent attitude and also, according to tradition, at his audacity in driving into the square of the hospital "with a North American Indian in full costume sitting beside him." After his retirement from the hospital Hodgkin devoted his best energies to the relief of the distress of the poor at home and of oppressed savages abroad, which earned him the recognition of Queen Victoria. Hodgkin described the disease which was associated with his name at Sir Samuel Wilks's suggestion when recording another case of it in 1865. A portrait of Hodgkin is given as a supplement to the *Gazette*. Of its remaining contents we note a poem "Christmas Camp" by Mr. Habberton Lulham, which shows his full depth of feeling.——The *London Hospital Gazette* (December) contains an interesting note by the Hon. Sydney Holland, illustrated from photographs showing "A New Patent Gaff," i.e., a retriever dog which he has trained at landing hooked salmon from a fast stream.——To the *St. Bartholomew's Hospital Journal* (December) Dr. W. P. Herringham contributes a note on a case of Rheumatoid Arthritis treated with bee-stings, from which he draws the inference that "bee-stings relieve pain, or people would not go on with them as they do. It is evident, also, that they would not have to go on with them as long as they do, if the bees could effect a cure." In discussing medical etiquette in another part of the *Gazette* the same author pronounces the dictum: "The public would suffer more if doctors were dishonourable than if they were unskilful." This is a true and pregnant aphorism.——In *St. George's Hospital Gazette* (December) W. F. J. writes on "Spinning for Pike," and an anonymous nosologist gives a description of "Love in its Medical Aspects."——*St. Mary's Hospital Gazette* (December) contains an appreciation of the work of Mr. A. J. Pepper, who has recently retired from the active staff of the hospital. The chief remaining contribution is a paper on Anthrax, by Dr. W. L. Holyoak.

THE TRAINING OF MEDICAL MISSIONARIES.

We have on several occasions referred to the good work which is done by Livingstone College in imparting to missionaries who intend to labour in places where qualified medical aid is unobtainable an elementary knowledge of medicine and surgery. In the annual report of the college, which has just been issued, reference is made to a speech of Dr. Butler, the Master of Trinity College, Cambridge, delivered at Livingstone College on Commemoration Day, in which he says: "It is really monstrous for devoted men and devoted women to go out to tropical climates without having obtained such knowledge of the mysteries of the human frame and of the importance of ministering to its necessities which it is possible to obtain in England." On the same occasion Professor Macalister said that the men trained at Livingstone College had taken their own proper platform as missionaries with a little knowledge of medicine, but not as medical missionaries, and they had done in their lifetime a splendid work. We are sorry to note that the financial year ended with a deficiency of £265, the subscriptions and donations being over £100 less than the previous year. The total income from subscriptions and donations was £266. The average number of students who entered for each term was 25, but 37 students in all entered for not less than one term. Of the 14 students who entered for the full session 11 were residents. Dr. C. F. Harford, the Principal of the College, concludes his report with the following words: "Increased efficiency is the great order of the day in every department of life, and if this is to be secured in missionary circles it must involve that missionaries going abroad should have some knowledge of the elements of medicine and surgery. Livingstone College exists to be a handmaid to all the missionary societies at home or abroad, and if only each will send its due quota of students to take advantage of the opportunities which the College affords the permanent success of Livingstone College will be absolutely secured."

The Medical Missionaries Society at Berne, which includes the names of the professors of the Faculty of Medicine of that University, has issued an appeal to medical men and students to enter the tropical missionary field. It is pointed out that up to the present time Germany and Switzerland have only sent between them some score of medical missionaries to the hot climates of the earth whilst English-speaking races have sent more than 500. Being deeply conscious of this disproportion the German-speaking countries have united in subscribing 250,000 francs to found an institute for working missionaries at Tübingen. The medical faculty of that town has gladly given its support, and on Oct. 20th last the institute was opened. It is equipped with all modern requirements and has apparatus and collections which will allow of a complete course of instruction in tropical diseases. Its director, Dr. Fiebig, Lieutenant-Colonel in the army of the Netherlands, has gained a large experience during the 22 years which he has been as military surgeon in the Dutch colonies, and he has considerably advanced our knowledge of beri-beri. His second in command is Dr. Olpp, who was for nine years superintendent of an important missionary hospital in China. An appeal for funds concludes by pointing out that although medical missionaries cannot expect to lay up for themselves any store of this world's riches, yet they have exceptional opportunities of bringing healing and consolation not to individuals only but to races, for many of the important lines of research which are being followed by men engaged in investigating the problems of tropical medicine may lead to results of a far-reaching beneficence that rarely fall to the lot of an individual investigator to compass. The appeal concludes with these words: "You will leave the sweets of civilisation, but you will every day find occasion to pour out all your energies, to apply all your knowledge, to satisfy your noblest aspirations, and you will know the joy which comes from bringing aid to your needy neighbour." If any of our readers are interested in this new institute they can obtain full information about it from Professor Niehans, Schänazlistrasse 57, Berne, or from Dr. Fiebig, director of the Medical Missionary Institute, Tübingen.

RASOIRS.

Le Figaro has published under this heading the following comment upon a recent annotation in our columns:—

Le journal de médecine anglais *The Lancet* vient de partir en guerre contre les moustaches qu'il denonce comme un "nid à microbes."

Il paraîtrait qu'en ce moment,
Un groupe de docteurs s'attache
A proscrire sévèrement
La moustache!

Ce sont des médecins anglais!
Mais on sait que la mode anglaise
Traverse le pas de Calais
Très à l'aise.

Pour ces gens,—Molière honnit
Leurs chapeaux pointus et leurs robes,—
Tout poil de moustache est un nid
A microbes!

C'est par lui que nous sont donnés
Les coryzas dont la tempête
Ravage et rougit jusqu'aux nez
En trompette!

On doit le rhume et ses accès
Sternutatoires et ses fièvres
A cet ornement, bien français,
De nos lèvres!

Docteurs! vous sûtes nous poser
Votre séné, votre rhubarbe;
Vous voulez, en plus, nous raser?
—Ah! la barbe!

LOUIS MARSOLLEAU.

THE PHARMACOLOGY OF APOCYNUM CANNABINUM.

APOCYNUM, a member of the group of cardiac tonics, has been credited with being the most powerful of the known indirect diuretics. The pharmacology of this drug, which is official in the United States, has recently been worked out by Dr. J. C. W. Graham and described in the *Bio-Chemical Journal* of Nov. 10th, 1909. For experimental purposes a 10 per cent. tincture, an extract and apocynin, a glucoside obtained from the drug, were administered to frogs, rabbits, dogs, and cats. It was found that each of these preparations gave rise to the same series of effects in the frog when injected subcutaneously. The heart beat is slowed and increased in amplitude, after which the beat becomes quicker and irregular, death occurring in systole. When injected into the dorsal lymph sac of the frog it was found that apocynin is comparatively inactive, whereas the tincture is distinctly toxic, the minimum lethal dose being one minim. A 1·25 per cent. solution of apocynin is three and a half times less toxic than the tincture. It was further demonstrated that the tincture of apocynum is about one and a half times more toxic than the tinctures of digitalis and squill, and nearly six times less toxic than the tincture of strophanthus. Apocynum acts on the heart somewhat similarly to digitalis in causing slowing of the heart beat. Its principal action is to raise the tonus of the muscle of the heart. It does not appear to depress the nerve endings. It acts essentially on heart muscle by increasing its irritability. The action of the drug on the blood pressure is due to the combined effect of two

or more factors, the increased output from the heart per minute and vaso-constriction, and when these two factors are most in evidence the drug produces its therapeutic effect. Experiments showed that apocynum causes a feeble increase of urinary flow in the healthy animal, its action being due to the increase in blood pressure and the passage of a greater quantity of blood through the kidney. Apocynum produces its diuretic effect best in patients with cardiac disease and a failing heart, by improving the circulation and so sending arterial blood to the kidneys in greater quantity. It has a penetrating, bitter taste, which gradually increases until nausea is felt. Large doses have a very toxic effect on the mucous membrane of the alimentary canal, producing hæmorrhagic areas and ulceration in the intestines. When compared with the other cardiac tonics apocynum ranks next to strophanthus as regards toxicity towards the frog's heart, while it is more toxic than digitalis and squill. It has a greater tendency to cause delirium cordis than any of the other three drugs. It is the most irritant of the four towards mucous membranes, as shown by the intense ulceration produced in the alimentary canal after the intravenous injection of moderate doses of the drug. Strophanthus is the least irritating to mucous membranes, and is in consequence the most readily absorbed. Apocynum is the most powerful vaso-constrictor of the group, and its property of constricting the blood-vessels stands in direct relationship to what is really the specific action of the drug—that is, its ability to increase the tonus of muscular tissue of every kind. In connexion with this action a greater rise of blood pressure is produced by apocynum than by the other members of the group. Strophanthus produces a comparatively small effect on the blood pressure, while apocynum causes a more immediate and sudden rise of blood pressure than digitalis or squill. There is no special difference in the action of these drugs on the kidney, which is in each case an indirect one, but apocynum appears to be the most likely to produce hæmaturia owing to its pronounced irritant properties.

A SINGULAR CAUSE OF DEATH.

AN inquiry was recently held at Highbridge relative to the death of a man, aged 52 years, who was found dead on the highway. Medical evidence showed that death was due to asphyxia. This was caused by his false teeth being wedged across his throat over the larynx, which made it absolutely impossible for the man to breathe The medical witness stated that the teeth were simply held by suction, and as deceased was probably breathing heavily while he was walking up a hill, he might have drawn the teeth back into his throat, and added that he did not think the deceased could have released the teeth himself. The jury returned a verdict in accordance with the medical evidence.

L. F. (Stockbridge).—The question which our correspondent asks cannot be answered with the directness which he assumes. There is no trustworthy evidence that the specific infection of diphtheria is transmissible by water and the general opinion is against such a view. At the same time an impure water-supply, with other unhealthy conditions, may very probably predispose a community to an outbreak of diphtheria should the specific bacillus be introduced.

L. D.—(*a*) Authorities are practically agreed that antitoxin should be injected in all doubtful cases; (*b*) they are also agreed that it should be used in all cases where diphtheria has been diagnosed by swab-(*c*) its use is now practically universal in this country, as far as our knowledge is concerned; (*d*) we do not know of any recognised authorities who hold a contrary opinion.

Hector.—Our correspondent's interpretation is correct under the conditions of the experiment.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

PATHOLOGICAL SECTION (Hon. Secretaries—L. S. Dudgeon, C. Bolton) at University College Hospital Medical School: at 8.30 P.M.

Laboratory Meeting.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—George C. Cathcart, L. Hemington Pegler).

Cases and Specimens:

Dr. Dundas Grant, Mr. Charters Symonds, Dr. Watson Williams, Dr. Dan McKenzie, and others.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Lantern-Lecture:—Dr. F. M. Sandwith: Malaria, with Special Reference to its Diagnosis and Treatment.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Annual General Meeting.

RÖNTGEN SOCIETY, 20, Hanover-square, W.

THURSDAY.—8.15 P.M., Dr. W. S. Lazarus-Barlow: Radio-activity and Cancer (illustrated by lantern slides).

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND, Physiological Department, Guy's Hospital, S.E.

FRIDAY.—1.30 P.M., Communications, &c., will be made by the following gentlemen:—H. J. Hutchens, P. C. W. Laws, and W. T. Sewell, W. J. Penfold, E. J. McWeeney, C. W. Ponder and G. Sims Woodhead, F. G. Bushnell, J. M. Beattie, T. Shennan and J. Miller, J. Ritchie and S. McDonald, N. Raw, M. S. Pembrey, C. M. Plumptre, E. G. Slesinger, and G. W. Goodhart, A. P. Beddard and M. S. Pembrey, A. E. Boycott and C. G. Douglas, C. G. Douglas, R. A. Chisolm, F. Parkes Weber, C. Price-Jones, and J. H. Ryffel.

SATURDAY.—10 A.M., Communications, &c., will be made by the following gentlemen:—W. Scott, H. Henry, J. McFadyean, J. P. McGowan, I. McKenzie, C. M. Stevenson, C. P. White, J. A. Murray, M. Haaland, B. R. G. Russel, H. Beckton, A. Bruce, D. Orr and R. G. Rows, W. E. C. Dickson, A. J. Hall, J. Fawcett and A. E. Boycott, W. H. White and A. E. Boycott. Demonstrations will be given by the following gentlemen:—C. P. White, J. M. Beattie, W. J. Penfold, and A. E. Boycott.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. Galloway: Clinique (Skin). 5.15 P.M., Lecture:—Dr. J. E. R. McDonagh: Serum Diagnosis of Syphilis.

TUESDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Mr. H. S. Collier: Indications for Abdominal Operations.

WEDNESDAY.—4 P.M., Mr. E. M. Corner: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. Donelan: Suppuration in the Maxillary Antrum.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. G. Oliver (Harrogate): The Treatment of High Blood Pressure.

FRIDAY.—4 P.M., Mr. J. G. French: Clinique (Ear, Nose, and Throat).

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Dr. F. M. Sandwith: Malaria, with Special Reference to its Diagnosis and Treatment. (Opening Lecture).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn road, W.C.

THURSDAY.—4.30 P.M., Clinical Lecture:—Dr. D. Grant: Laryngeal Tuberculosis.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W

MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.

TUESDAY.—5 P.M., Clinical Demonstration:—Dr. J. Mackenzie.

WEDNESDAY.—3 P.M., Clinical Demonstration:—Dr. F. Palmer.

THURSDAY.—3 P.M., Clinical Demonstration:—Dr. T. D. Savill.

FRIDAY.—2 P.M., Clinical Demonstration:—Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Essentials in the Study of Dermatology.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (5th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (6th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children,

Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (8th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

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THE Index and Title-page to Vol. II. of 1909 were given in THE LANCET of Dec. 25th, 1909.

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THE LANCET Office, Dec. 29th, 1909.

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Dec. 23	29·04	S.W.	0·02	56	53	49	51	52	Fine
,, 24	29·51	WNW	0·15	55	45	41	40	41	Hazy
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,, 27	29 80	S.W.	0·04	56	54	47	48	50	Cloudy
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